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ELNOS
GROUP

HE PERUĆICA I VP GVOZD / HPP PERUĆICA AND WP GVOZD:

**CRNA GORA NA TALASU
ZELENE ENERGIJE** 06
MONTENEGRO ON A WAVE OF
GREEN ENERGY

TRI STRATEŠKA 400 KV PROJEKTA /
THREE STRATEGIC 400 KV PROJECTS:

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GRIDS, GROWTH AND
GREEN GOALS





Izgradnja 220 kV dalekovoda Suðurnesjalína 2, Ísland
Construction of 220 kV transmission line Suðurnesjalína 2, Iceland

Riječ urednika

Editors letter

SR Dragi prijatelji, poštovani partneri,

Energetika ubrzano korača kroz novu eru. Svi koji smo u ovom sektoru osjećamo isti ritam: više promjena, više očekivanja, više odgovornosti i sve snažniji imperativ dekarbonizacije.

Kako Elnos Grupa odgovara na te izazove, najbolje se vidi na terenu: od krajnjeg sjevera do juga Evrope, od obnovljivih izvora energije do digitalizovanih mreža, naša rješenja donose pouzdanost i inovacije.

Pred vama su priče koje to najbolje potvrđuju. One govore o projektima, ali i o onome što ih čini posebnim: ljudima i partnerstvima, povjerenju koje se gradi dugoročno. U njima se jasno vidi da je snaga Elnosa u spremnosti da uči, da se prilagođava i da uvijek ide korak ispred.

Ova godina za nas je posebna i zbog velikih jubileja: 80 godina tradicije i 30 godina modernog postovanja. Tim povodom, donosimo intervju sa predsjednikom naše Grupe, u kome ćete saznati kako su ostvareni rezultati o kojima smo nekada samo sanjari. Jubileji su i podsjetnik da se na temeljima čvrste tradicije može graditi još snažnija budućnost.

Hvala vam na povjerenju. Radujemo se toj budućnosti i ponosni smo što ćemo je zajedno stvarati.

EN Dear friends and partners,

Power engineering is advancing rapidly into a new era. Across the sector, we all feel the same rhythm: transformation is accelerating, expectations are rising, responsibility is deepening, and the imperative of decarbonization grows stronger by the day.

The way Elnos Group meets these challenges is best seen on site. From the northern reaches of Europe to its southern corridors, across renewable energy facilities and digitalized grids, our projects reinforce reliability while introducing solutions built for the future.

The stories before you reflect our commitment to stability and innovation. They speak of complex projects, yet even more of the people who bring them to life, the partnerships that give them strength, and the trust cultivated over years of collaboration. Within each of them lies a clear message: the strength of Elnos rests in its readiness to learn, its capacity to adapt, and its resolve to remain one step ahead.

This year carries special significance as we mark two great jubilees: 80 years of tradition and 30 years of modern business. To honor these milestones, we present an interview with the President of our Group, revealing how results we once dreamed of became reality. Anniversaries such as these remind us that a strong tradition does more than preserve the past; it creates a firm foundation for the future we continue to build.

Thank you for your trust. We look to the future with confidence and take pride in building it with you.



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Implementation of modern SCADA solutions and IoT technologies allows old and new energy systems to “speak the same language”.

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Kroz program stipendiranja i mentorstva, mladi inženjeri grade svoj put od fakulteta do profesionalne karijere u Elnos Grupi.

Through a scholarship and mentoring program, young engineers carve out their path from university into a professional career at Elnos Group.



Najuspješnije veliko preduzeće u RS

MOST SUCCESSFUL LARGE COMPANY IN REPUBLIC OF SRPSKA

SR Kao rezultat niza ostvarenih postignuća Privredna komora RS je proglasila Elnos Banjaluka najuspješnijom kompanijom u kategoriji velikih privrednih subjekata u Republici Srpskoj.

Ovo prestižno priznanje doživljavamo kao snažnu potvrdu našeg rada i profesionalnog pristupa. Istovremeno, ono nas podstiče da i u narednom periodu, na domaćem i evropskom tržištu, nastavimo graditi savremene elektroenergetske sisteme najviših performansi.

EN In recognition of a series of achievements, the Chamber of Commerce of Republic of Srpska named Elnos Banjaluka the most suc-



Dušan Torbica, predsjednik Elnos Grupe Dušan Torbica, President of Elnos Group

cessful company in the category of large legal entities.

We see this prestigious award as a strong affirmation of our work and our professional

standards. At the same time, it encourages us to keep building modern, high-performing power systems in the period ahead, both on the domestic market and across Europe.



Veliki HVDC iskorak!

MAJOR HVDC STEP FORWARD

SR Elnos Grupa je potpisala ugovor sa kompanijom Hitachi Energy za izgradnju novih HVDC konvertorskih stanica širom Evrope.

Projekti će se realizovati u periodu od 2026. do 2032. godine. Ovim ugovorom dodatno smo učvrstili poziciju pouzdanog partnera u razvoju integrisanog evropskog energetskog tržišta, nastavljajući dugogodišnju i uspješnu saradnju sa kompanijom Hitachi Energy.

EN Elnos Group has signed a contract with Hitachi Energy to build new HVDC converter stations across Europe.

The projects will be carried out from 2026 to 2032. With this contract, we have further strengthened our position as a trusted partner in the development of an integrated European energy market, continuing our long-standing and successful cooperation with Hitachi Energy.

Potpisivanje ugovora (Elnos Grupa i Hitachi Energy) Contract signing (Elnos Group and Hitachi Energy)

Gradimo stratešku arteriju S. Makedonije

BUILDING A STRATEGIC ARTERY IN NORTH MACEDONIA

SR Elnos Grupa je dio konzorcijuma koji će graditi novi 400 kV dalekovod od trafostanice Bitola 2 do trafostanice Ohrid, obje naponskog nivoa 400/110 kV, sve do granice između S. Makedonije i Albanije. Ovaj važan ugovor potpisan je sa operatorom prenosnog sistema električne energije S. Make-

donije (MEPSO), a kao dio konzorcijuma čije su članice kompanije iz nekoliko ex Yu država. Izgradnja ovog dalekovoda će osigurati dugoročnu stabilnost elektroenergetskog sistema u široj regiji.

EN Elnos Group is part of a consortium that will build a new 400 kV transmission line from substation Bitola 2 to substation Ohrid, both at the 400/110 kV voltage level, all the way to the border between North Macedonia and Albania.

The contract was signed with North Macedonia's Electricity Transmission System Operator MEPSO, as part of a consortium bringing together companies from several countries of the former Yugoslavia. Once completed, the transmission line will support long-term stability of the power system across the wider region.



Gradilište projekta HS2 HS2 project site

Na megaprojektu „High Speed 2“

ON THE MEGAPROJECT HIGH SPEED 2

SR Elnos Grupa je u okviru megapoduhvata „High Speed 2“ u Velikoj Britaniji realizovala prvu kontejnersku distributivnu trafostanicu na lokaciji Euston, čime smo iskoračili na četvrto gradilište u okviru ovog projekta. U narednom periodu ugovorena je izgradnja još četiri trafostanice za ovu lokaciju. U prethodne četiri godine, u okviru projekta „High Speed 2“, Elnos Grupa je projektovala, izradila, isporučila i instalirala ukupno 51 kontejnersku distributivnu trafostanicu.

EN As part of the megaproject High Speed 2 in the United Kingdom, Elnos Group delivered its first containerized distribution substation at the Euston site, extending our work to a fourth construction location within the project. In the period ahead, the construction of four additional substations for this site has already been contracted. Over the past four years, within project High Speed 2, Elnos Group has designed, manufactured, delivered, and installed a total of 51 containerized distribution substations.



Potpisivanje ugovora (Elnos Grupa i Sinohydro Corporation Limited) Contract signing (Elnos Group and Sinohydro Corporation Limited)

Vetrozelena – novih 300 megavata za budućnost

VETROZELENA: 300 NEW MEGAWATTS FOR THE FUTURE

SR Elnos Srbija potpisala je EPC ugovor sa kompanijom Sinohydro Corporation Limited, članicom Power China Construction Group, za

izgradnju vjetroparka Vetrozelena (300 MW), najvećeg pojedinačnog vjetroparka na Balkanu. Ovaj projekt predstavlja još jedan ugovor zaključen po EPC principu u okviru kojeg Elnos Srbija realizuje dio radova Electrical Balance of Plant.

EN Elnos Serbia has signed an EPC contract with Sinohydro Corporation Limited, a member of Power China Construction Group, for the construction of wind park Vetrozelena (300 MW), the largest single wind park on the Balkans. The project serves as another example of a contract under EPC principle, where Elnos Serbia will deliver part of the Electrical Balance of Plant works.

CRNA GORA NA TALASU ZELENE ENERGIJE

MONTENEGRO ON A WAVE OF GREEN ENERGY

SR U zemlji pod Lovćenom pojačava se zeleni energetski puls. Velika modernizacija čuvene hidroelektrane Perućica, koja je u toku, te izgradnja vjetroparka Gvozd, koji će biti nova „fabrika“ čiste energije, predstavljaju dva snažna koraka ka ispunjenju ambicioznog cilja, a to je održiva budućnost. Ekipe Elnos Grupe učestvuju u realizaciji oba velika zelena projekta.

MODERNIZACIJA HE PERUĆICA

Najstarija hidroelektrana u Crnoj Gori – Perućica (307 MW) – ulazi u novu epohu svoje impresivne istorije, duge više od šest i po decenija. Nakon decenija pouzdanog rada, prije tri godine naši timovi zakoračili su u sveobuhvatnu modernizaciju elektro i mašinske opreme, čime je otvoren jedan od najznačajnijih ciklusa obnove ove elektrane u njenoj istoriji. Srce hidroelektrane čini sedam agregata, u kojima se rehabilituje kompletna elektro i mašinska oprema, s izuzetkom generatora.

Elnos Grupi povjereni su poslovi rehabilitacije agregata A5 (40 MW), A6 i A7 (po 65 MW), djelimične rehabilitacije agregata A1, A2, A3 i A4 (svaki snage 40 MW), rehabilitacije pet zatvaračnica, kao i implementacije sistema za hidrauličko-hidrološka mjerenja. Tokom 2024. godine realizovani su radovi na agregatima A1, A2 i A6, kao i na dvije zatvaračnice, dok su u 2025. godini nastavljeni radovi na preostalim agregatima i dodatne dvije zatvaračnice.

NAJVEĆI OBIM RADOVA

Treća godina, kako smo angažovani na ovom velikom projektu, ističe Goran Đurasović,

projekt menadžer Elnos Grupe, bila je najzahtjevnija, jer je u 2025. izvođen najveći obim radova – agregati A3, A4, A7, te zatvaračnice Krupac i Marin Krst.

„Radovi su se odvijali paralelno, uz istovremeni angažman na dva agregata. Dobra priprema nam je omogućila da se potencijalni problemi prepoznaju unaprijed, ali je izazovno bilo poštovati ugovorene dinamike izvođenja, budući da pomjeranje rokova nije bilo opcija“, pojašnjava on.

Demontažno-montažni radovi na velikoj mašinskoj opremi su uvijek posebno zahtjevni. Svaka faza mora biti precizno isplanirana i izvedena bez prostora za grešku. Najveći obim posla bio je na agregatu A7. Rad u skućenim prostorima uvijek donosi dodatni nivo kompleksnosti, jer je manuelni rad često otežan i zahtijeva upotrebu specijalizovane mehanizacije.

Upravo zbog toga, Voith Hydro je za potrebe projekta dizajnirao i isporučio specijalizovan alat, uključujući šinski sistem, potpore i nosače koji omogućavaju sigurno rukovanje teškim komponentama. Tokom ove faze korišteni su i posebni ključevi, kao i 3D laser za precizno mjerenje i pozicioniranje opreme, čime je obezbijeden visok nivo tačnosti i pouzdanosti tokom izvođenja radova.

AUTOMATIZACIJA I ZATVARAČNICE

„Svaki rekonstruisani agregat integriše se u novi sistem upravljanja, dok stari sistem paralelno ostaje u funkciji. Nova tehnologija uspostavlja automatizovano upravljanje procesima, omogućavajući optimizaciju rada



Kompletna rehabilitacija agregata A5, A6 i A7
Complete rehabilitation of generating units A5, A6 and A7





CRNA GORA – zemlja gdje se sudaraju more i planine. Dinamika i mir. Prošlost i budućnost. Tu, gdje Jadran grli kamen, sve je vidljivija energetska tranzicija. Solarna energija užurbano ulazi u domaćinstva, vjetroelektrane preuzimaju sve veći dio nove proizvodnje, dok hidroenergija ostaje oslonac stabilnosti elektroenergetskog sistema.

MONTENEGRO – a country where sea and mountains converge. Where restlessness and calm coexist. Where past and future stand side by side. Here, where the Adriatic meets stone, the energy transition is becoming harder to miss. Solar power is moving quickly into homes, wind parks are taking on a growing share of new generation, and hydropower remains the anchor of stability for the national power system.

HE Perućica (307 MW) HPP Perućica (307 MW)



po više ključnih parametara – od tehničkih gubitaka i raspoložive količine vode do cijene električne energije na tržištu. Samim tim, mijenja se uloga čovjeka. On je sada u funkciji planera i kontrolora procesa“, naglašava Đurasović.

Modernizacija sistema donosi i konkretne dugoročne benefite. Kroz digitalizaciju i primjenu naprednih tehnologija ostvaruje se smanjenje operativnih troškova, uz istovremeno povećanje efikasnosti i pouzdanosti rada.

„Izazovni su bili i radovi na zatvaračnicama Krupac i Marin Krst. Na ove dvije zatvaračnice radili smo zamjenu elektroopreme – ormana, kablova i mašinske opreme – hidrauličnih agregata i pogona te AUMA pogona. Takođe, rađena je reparacija tijela tablastih zatvarača – ispitivanja i antikorozivna zaštita“, pojasnila je Ivana Mičić, inženjerka Elnos Grupe.

Radovi na zatvaračnicama mogu se izvoditi samo tokom perioda remonta elektrane ili tokom sušnih sezona, kada je smanjen dotok vode.

IZGRADNJA VJETROPARKA GVOZD

Dvadesetak kilometara sjeveroistočno od lokacije HE Perućica, vazdušnom linijom, naši timovi istovremeno su radili na drugom važnom zadatku.

U blizini sela Gvozd, na Krnovskoj visoravni, kod Nikšića, pejzaž dobija novu dimenziju. Tu se gradi vjetropark Gvozd, jedan od najznačajnijih projekata obnovljivih izvora energije u Crnoj Gori, instalisane snage 54,6 MW.

Očekuje se da će vjetroelektrana godišnje proizvoditi najmanje 141 GWh čiste energije, čime se direktno doprinosi smanjenju učešća termoizvora u energetsom miksu zemlje.

U sklopu kompleksnog infrastrukturnog zahvata na projektu Gvozd, Elnos Grupi je u okviru konzorcijuma sa kompanijom XEnergy iz Podgorice, kao partnerom, povjeren niz velikih zadataka. Radovi se izvode po sistemu „ključ u ruke“, koji podrazumijeva dio radova Electrical Balance of Plant.

NAŠI ZADACI

Poslovi povjereni našim timovima odnose se na povezivanje vjetroelektrane na elektroenergetsku mrežu. Ovaj obiman zadatak obuhvata izgradnju nove trafostanice 33/110 kV Gvozd, proširenje postojećih trafostanica 33/110 kV Krnovo i 110/35 kV Brezna (Nikšić), kao i izgradnju dva nova 110 kV dalekovoda – Gvozd-Krnovo i Gvozd-Nikšić.

Na taj način biće uspostavljen stabilan i pouzdan priključak vjetroelektrane na visokonaponsku mrežu.

Trafostanice Gvozd i Krnovo biće međusobno povezane novim 110 kV dalekovodom, dok će se trafostanica Krnovo dvosistemskim 110 kV dalekovodom povezati sa trafostanicom Brezna, a trafostanica Gvozd sa 110/35 kV trafostanicom Nikšić 1 (Željezara), čime će se omogućiti sigurno uključivanje vjetroparka u elektroenergetski sistem.

Stefan Pupovac, projekt menadžer Elnos Grupe, navodi da su radovi započeli u aprilu ove godine. U međuvremenu je završen dalekovod Gvozd-Krnovo, dok su radovi na

dalekovodu Gvozd-Nikšić u punom jeku. Vjetropark Gvozd će imati osam vjetrogeneratora pojedinačne snage sedam megavata.

Aktuelni radovi na trafostanicama Gvozd i Krnovo u završnoj su fazi, dok je početak proširenja trafostanice Nikšić planiran za početak 2026. godine.

„Teren je izrazito kamenit, što je zahtijevalo posebne vještine naših ekipa, ali i dodatnu opreznost tokom izvođenja radova. U pojedinim fazama bilo je angažovano i do 50 radnika, što nam je omogućilo da realizujemo ciljeve koje smo postavili za 2025. godinu“, ističe Pupovac, dodajući da bi kompletni radovi trebalo da budu završeni krajem juna 2026. godine.

STUB VISOK 120 m

Elektroprivreda Crne Gore (EPCG) u 2025. napravila je istorijski energetski korak: u okviru izgradnje vjetroparka Gvozd instalirala je jedan od najvećih vjetrogeneratora u Evropi. Vjetrogenerator ima snagu sedam MW, stub visok 120 m i elise dužine 85 metara. Ovaj korak, kako su ocijenili u EPCG, označava početak završne faze realizacije projekta koji predstavlja jedan od ključnih infrastrukturnih iskoraka u modernoj istoriji crnogorske energetike.



Izvodimo e-BoP poslove na VP Gvozd (54,6 MW) E-BoP works at WP Gvozd (54.6 MW)

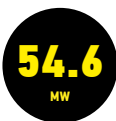
Brojke
Figures



snaga HE Perućica
HPP Perućica capacity



maksimalna godišnja
proizvodnja HE Perućica
HPP Perućica maximum
annual output



snaga VP Gvozd
WP Gvozd capacity



planirana godišnja
proizvodnja VP Gvozd
WP Gvozd planned
annual output

EN Beneath Mount Lovćen, the pulse of green energy is quickening. The major modernization now under way at the landmark hydro power plant Perućica, and the construction of the wind park Gvozd—set to become a new factory of clean electricity—stand as two decisive steps toward an ambitious goal: a sustainable future. Elnos Group teams are contributing to both projects.

MODERNIZING HPP PERUĆICA

The oldest hydro power plant in Montenegro—Perućica (307 MW)—is entering a new chapter in an impressive story that stretches back more than six and a half decades. After a long record of reliable operation, our teams began a comprehensive modernization of the plant’s electrical and mechanical systems three years ago, launching one of the most

significant renewal cycles in its history. At the heart of the facility are seven generating units, all undergoing refurbishment of their electrical and mechanical systems, with the generators themselves excluded.

Elnos Group has been entrusted with the rehabilitation of units A5 (40 MW), A6 and A7 (65 MW each); partial rehabilitation of units A1, A2, A3 and A4 (40 MW each); rehabilitation of five gatehouses; and the implementation of a system for hydraulic and hydrological measurements.

During 2024, work was completed on units A1, A2 and A6, as well as on two gatehouses. In 2025, work continued on the remaining units, along with an additional two gatehouses.

PEAK WORKLOAD

Goran Đurasović, Project Manager at Elnos Group, notes that the third year of work on the project was the most demanding, as 2025 brought the largest workload, including units A3, A4 and A7, as well as gatehouses Krupac and Marin Krst.

“Work progressed in parallel, with simultaneous engagement on two units. Thorough preparation allowed us to identify potential problems in advance, but meeting the contracted schedule was challenging, since deadline extensions were not an option,” he explains.

Disassembly and reassembly works on large machinery is always especially demanding. Each phase must be planned and executed with precision, leaving no room for error. The largest scope of work was carried out on unit A7. Working in confined spaces adds another layer of complexity, since manual work is often constrained and requires specialized machinery.

For that reason, Voith Hydro designed and delivered specialized tools for the project, including a rail system, supports and carriers that allow heavy components to be handled safely. This phase of works also relied on special wrench tools, as well as a 3D laser for precise measurement and positioning, to ensure a high level of accuracy and reliability throughout the works.

AUTOMATION AND GATEHOUSES

“Each reconstructed unit is integrated into a new control system, while the old system remains in operation in parallel. The new technology establishes automated process control, enabling optimization across several key parameters—from technical losses

and available water volumes to the market price of electricity. That changes the human role. The operator now functions as a planner and controller of the process,” Đurasović emphasizes.

The modernization also delivers concrete long-term benefits. Through digitalization and the application of advanced technologies, operating costs are reduced while efficiency and reliability increase.

“The works at the Krupac and Marin Krst gatehouses were challenging as well. At these two structures, we replaced electrical equipment—cabinets and cables—as well as mechanical equipment, including hydraulic power units and drives, with AUMA drives among them. We also refurbished the bodies of the slide gates—testing and anti-corrosion protection,” explains Ivana Mičić, Engineer at Elnos Group.

Works on gatehouses can only be carried out during plant overhaul periods or in dry seasons, when water inflow is reduced.

CONSTRUCTION OF WIND PARK GVOZD

At the same time, at a site roughly twenty kilometers northeast of Perućica by air, our teams were working on another major assignment.

Near the village of Gvozd, on the Krnovo plateau outside Nikšić, the landscape is taking on a new dimension. Wind park Gvozd is rising here, one of Montenegro’s most significant renewable energy projects, with an installed capacity of 54.6 MW.

The wind power plant is expected to generate minimum 141 GWh of clean electricity each year, directly reducing the share of thermal sources in the country’s energy mix.

Within the broader infrastructure works at Gvozd, Elnos Group, operating within a consortium XEnergy from Podgorica as a partner, has been entrusted with a series of major tasks. The works are being delivered on a turnkey basis, covering part of the Electrical Balance of Plant works.

OUR ASSIGNMENTS

The work assigned to our teams centers on connecting the wind park to the electrical power network. This extensive scope includes construction of new 33/110 kV substation Gvozd; expansion of existing substation Krnovo (33/110 kV) and Brezna (110/35 kV) near Nikšić and construction of two new 110 kV transmission lines—Gvozd–Krnovo and Gvozd–Nikšić.

In this way, a stable and reliable connection of the wind park to the high-voltage network will be established.

Substations Gvozd and Krnovo will be connected between themselves by the new 110 kV transmission line, while Krnovo will be connected to substation Brezna by a double-circuit 110 kV line. Gvozd will also be connected to the 110/35 kV substation Nikšić 1 (Željezara), enabling the wind park to be integrated safely into the power system.

Stefan Pupovac, Project Manager at Elnos Group, notes that works began in April this year. Transmission line Gvozd–Krnovo has since been completed, while works on line Gvozd–Nikšić are in full swing. Wind park Gvozd will include eight wind turbines, each with an individual capacity of seven megawatts.

Current works at substations Gvozd and Krnovo are in the final phase, while the expansion of substation Nikšić substation is planned to begin in early 2026.

“The terrain is extremely rocky, which required special skills from our crews, as well as additional caution during execution. At certain stages, up to 50 workers were engaged, which enabled us to meet the targets we set for 2025,” Pupovac says, adding that the full scope of works should be completed by the end of June 2026.

TOWER 120 METERS HIGH

In 2025, Montenegro’s power utility Elektroprivreda Crne Gore (EPCG) made a historic step forward: as part of construction of wind park Gvozd, it installed one of the largest wind turbine in Europe. The turbine has a capacity of 7 MW, a 120-meter tower, and 85 meters long blades. EPCG described the move as the start of the final phase of a project that stands among the most important infrastructure advances in the modern history of Montenegro’s energy sector.

HE DABAR

OD KUĆE PA SVE DO KINE

HPP DABAR – ALL THE
WAY TO CHINA



DOK SE NA DABARSKOM POLJU

zemlja otvara, a nasipi rastu sloj po sloj, istovremeno se daleko od gradilišta, u fabrikama širom Evrope i Azije, proizvodi oprema bez koje ovaj projekat ne bi mogao zaživjeti. Hidroelektrana Dabar (159,55 MW) danas se ne gradi samo na jednoj lokaciji. Ona nastaje paralelno – na terenu, kroz intenzivne građevinske radove koji predstavljaju osnovu budućeg sistema, i u proizvodnim halama od Španije do Kine, gdje se izrađuju ključne elektromašinske komponente hidroelektrane koja je jedan od najvećih hidroenergetskih projekata u regiji Zapadnog Balkana.

AS THE GROUND OPENS ACROSS

DABAR FIELD and embankments rise layer by layer, the project is advancing simultaneously far from the construction site, in factories across Europe and Asia, where the equipment bringing the project to life is being manufactured. Hydro power plant Dabar (159.55 MW) is not being built in one place alone — alongside intensive civil engineering works on site, key electromechanical components are being manufactured in production facilities from Spain to China for one of the largest hydro power projects in the Western Balkans.

SR GRADILIŠTE KOJE SE MJERI HEKTARIMA

Većina terenskih aktivnosti naših ekipa bila je usmjerena na izgradnju nasipa na kojem će biti podignuto buduće 220 kV priključno-razvodno postrojenje – ključni objekat za povezivanje hidroelektrane Dabar na elektroenergetsku mrežu.

Sve je počelo iskopima. Iz zemlje je iskopano oko 20.000 kubnih metara materijala. Teren je otvoren, ogoljen i pripremljen za ono što slijedi. Zatim je došao kamen. Mnogo kamena. Gotovo 180.000 kubnih metara ugrađeno je sloj po sloj. Nasip je rastao polako, ali sigurno, sve dok se nije proširio na 10.000 kvadratnih metara Dabarskog polja. Na pojedinim dionicama nasip dostiže debljinu veću od 18 metara, što jasno govori o razmjerama i kompleksnosti ovih građevinskih radova. Prostor na kojem su mjesecima dominirali mehanizacija, logistika i precizno planiran rad sada je čvrsta osnova za naredne faze projekta.

„Izgradnja nasipa uspješno je završena, a aktivnosti su sada usmjerene na izvođenje armiranobetonskih radova na izgradnji temelja nosača aparata priključno-razvodnog postrojenja“, kaže Dušan Dimitrijević, rukovodilac Divizije za građevinu u Elnosu BL.

SLOŽEN SISTEM

Iako HE Dabar sada izgleda kao jedna tačka na mapi, u stvarnosti iza te tačke stoji cijeli sistem gradilišta. U složenom mozaiku, naši timovi su tokom aktuelne građevinske etape

intenzivno angažovani na jednom od ključnih gradilišta. Najveći operativni zahtjevi na ovoj lokaciji često nisu oni koje je moguće fotografisati.

Geološki, organizacioni i logistički izazovi smjenjuju se u zavisnosti od etape projekta, a priroda je često imala posljednju riječ. Rano proljeće i jesen pokazali su se kao najzahtjevniji periodi, kada povišeni vodostaji u Dabarskom polju diktiraju tempo rada i zahtijevaju dodatno prilagođavanje dinamike rada na terenu.

„Poseban izazov predstavlja koordinacija radnih procesa svih učesnika u građenju, odnosno priprema tehničkih rješenja i njihova primjena“, rekao je Dimitrijević.

Istovremeno, projekti ove veličine uvijek testiraju granice. „HE Dabar je projekat koji nerijetko zahtijeva proširenje resursa, i kadrovskih, i mehanizacijskih, bez obzira na trenutne kapacitete“, kaže Dimitrijević.

OD ŠPANIJE PA SVE DO KINE

Paralelno sa radovima na terenu, u punom kapacitetu teče proizvodnja ključne elektromašinske opreme za hidroelektranu Dabar, čineći drugi snažan tok realizacije projekta. Elektromašinska oprema izrađuje se paralelno na više lokacija i kontinentata – od Poljske i Njemačke, preko BiH, Italije, Austrije, Španije i Turske, pa sve do Kine, a izrada svake pojedinačne komponente odvija se uz najstrože poštovanje standarda kvaliteta, rokova i tehničkih zahtjeva.

Ovakav model rada karakterističan je za najveće savremene hidroenergetske projekte, gdje se brzina realizacije, kvalitet i pouzdanost postižu kroz precizno koordinisanu međunarodnu proizvodnju.

„Ovo je projekat u kojem se u istom trenutku radi na više tačaka svijeta, ali sa jednim ciljem – da se na kraju sve komponente spoje u funkcionalnu, pouzdanu cjelinu na lokaciji HE Dabar“, ističe Duško Čabrilo, projekt menadžer Elnosa BL.

TURBINE – MASIVNE KOMPONENTE VISOKE PRECIZNOSTI

Segmentna i geografski raspoređena izrada turbinske opreme omogućava da se svaka komponenta proizvodi tamo gdje postoje optimalni tehnološki i proizvodni uslovi, uz potpunu kontrolu kvaliteta i preciznosti.

Turbinska oprema za HE Dabar spada u grupu izrazito masivnih i tehnički zahtjevnih sklopova, gdje se velika masa kombinuje sa visokim zahtjevima preciznosti. Razvodna cijev, proizvedena u Turskoj, ukupne je težine gotovo 60 tona i izrađena je iz pet segmenata pojedinačne težine od pet do 19 tona. „Kućište turbine proizvedeno je u Turskoj i teži oko 33 tone. Zajedno sa razvodnom cijevi, ono predstavlja ključni konstruktivni element turbine, čija je uloga da osigura mehaničku stabilnost i pouzdan rad pri velikim hidrauličkim opterećenjima“, rekao je Čabrilo.

Turbinska vratila proizvode se u Italiji, dok se otkovci za radna kola izrađuju u Njemačkoj. Završna mašinska obrada radnih kola realizuje se u Španiji, gdje se postižu zahtijevane tolerancije i kvalitet površinske obrade.

ELNOS GRUPA I HE DABAR

Elnos Grupa u ovom projektu učestvuje kao glavni podizvođač za kompletnu elektromašinsku fazu radova. Glavni ugovarač projekta je kineska kompanija China Gezhouba Group Company Ltd. (CGGC), dok je investitor Elektroprivreda Republike Srpske. Za isporuku kapitalne opreme – turbine i generatora – Elnos Grupa angažovala je kompaniju Voith Hydro, jednog od vodećih svjetskih proizvođača generatora i turbina velikih snaga.

Brojke Figures



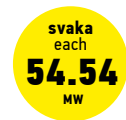
Snaga:
Capacity:



Godišnja proizvodnja:
Annual output:



Derivacioni tunel:
Intake tunnel:



Turbine: 3 Pelton turbine,
nominalne snage
Turbines: 3 Pelton turbines,
nominal capacity

Mlaznice se proizvode u Austriji, dok se skretači mlaza izrađuju u Španiji.

GENERATOR – SRCE ELEKTRANE TEŠKO 200 TONA

Generatorska oprema za HE Dabar predstavlja najmasivniji pojedinačni sklop u cijelom postrojenju. Ukupna težina generatora prelazi 200 tona, što ga svrstava među najveće i najzahtjevnije komponente buduće hidroelektrane.

Na primjeru generatora jasno se vidi kako se regionalni i globalni industrijski kapaciteti integrišu u jedinstven sistem, u kojem se visokospecijalizovani dijelovi proizvode i u regionu, dok se masivni konstruktivni elementi izrađuju u velikim međunarodnim proizvodnim centrima.

Rotor generatora teži više od 130 tona, dok stator, zajedno sa paketima limova i namotajima, ima masu veću od 75 tona. Limovi statora proizvode se u Poljskoj, kućište statora proizvodi se u Turskoj, dok se polovi rotora i statorski namotaji proizvode u Voithovoj fabrici kod Tuzle (BiH), čime se značajan dio visokospecijalizovanih radova realizuje u regionu. Generatorska vratila proizvode se u Italiji, zajedno sa turbinskim vratilima.

SNAGA KOJA OSTAJE

HE Dabar je na ovaj način potvrđen ne samo kao važan energetska objekat, već i kao primjer uspješne integracije vrhunskih inženjerskih rješenja, međunarodne saradnje i savremene proizvodnje elektromašinske opreme.

EN CONSTRUCTION SITE SPANNING HECTARES

Most activities on the site carried out by our teams focused on building the embankment that will support the future 220 kV switchyard, a key facility for connecting hydro

power plant Dabar to the electrical power network.

It began with excavation. Around 20,000 cubic meters of material were removed from the ground. The site was opened, stripped back, and prepared for the next stage. Then came the stone. A great deal of stone. Nearly 180,000 cubic meters were placed, layer by layer. The embankment rose steadily until it spread across 10,000 square meters of the Dabar field. In certain sections, the embankment reaches a thickness of more than 18 meters, clearly illustrating the scale and complexity of these construction works. An area that for months was dominated by machinery, logistics, and precisely coordinated operations now stands as solid foundation for the next phases of the project.

“The construction of the embankment has been successfully completed, and activities are now focused on reinforced concrete works for the foundations of the switchyard equipment supports,” says Dušan Dimitrijević, Head of the Civil Engineering Division at Elnos BL.

COMPLEX SYSTEM

On a map, HPP Dabar may register as a single point, but in reality that point encompasses an entire system of construction sites spread across the landscape. Within this interconnected framework, our teams are currently focused on one of the project’s key locations, where civil works are in full progress. Here, the most demanding aspects of the job are often those that cannot be captured in photographs.

Geological, organizational, and logistical challenges vary from one project phase to another, with natural conditions frequently having the final say in how these unfold. Early spring and autumn have proven to be the most demanding periods, as elevated

water levels in Dabar field dictate the pace of work and require further adjustments of time schedules.

“A particular challenge lies in coordinating the work processes of all participants in construction, as well as in developing technical solutions and applying them on site,” Dimitrijević notes.

At the same time, projects of this scale consistently test limits. “HPP Dabar is a project that frequently requires an expansion of resources, both human and mechanical, regardless of existing capacities,” Dimitrijević adds.

FROM SPAIN THROUGH CHINA

Alongside the works on site, the production of key electromechanical equipment for the plant is underway at full capacity, forming a parallel stream that drives the project’s realization forward.

The equipment is being manufactured on multiple locations and continents simultaneously – from Poland and Germany, across Bosnia and Herzegovina, Italy, Spain and Turkey, all the way to China. Each individual component is produced under rigorous quality standards, with close adherence to defined timelines and technical requirements.

This approach reflects the way today’s largest hydropower projects are delivered, where construction speed, quality, and reliability depend on precisely coordinated production across multiple countries.

“This is a project where works are taking place at multiple points around the world at the same time, all with a single objective – to bring every component together into a functional and reliable whole at the site of HPP Dabar,” says Duško Čabrilo, Project Manager at Elnos BL.

TURBINES – MASSIVE COMPONENTS OF HIGH PRECISION

Segmented production across multiple countries allows turbine components to be manufactured where the most suitable technological and production conditions exist, while maintaining full control over quality and precision.

Turbine equipment for hydro power plant Dabar comprises exceptionally large and technically demanding components, where substantial weight coincides with stringent precision requirements. The distribution pipe, manufactured in Turkey, has a total

weight of nearly 60 tones and is produced in five segments, each weighing between five and 19 tones. “The turbine housing is also manufactured in Turkey and weighs about 33 tones. Together with the distribution pipe, it represents a key structural element of the turbine, ensuring mechanical stability and reliable operation under high hydraulic loads,” says Duško Čabrilo, Project Manager at Elnos BL.

Turbine shafts are produced in Italy, while runner forgings are manufactured in Germany. Final machining of the runner wheels is carried out in Spain, where specified dimensional tolerances are met and the required surface finish is achieved. Nozzles are produced in Austria, while jet deflectors are manufactured in Spain.

GENERATOR – HEART OF THE PLANT WEIGHING 200 TONS

Generator equipment for hydro power plant Dabar represents the single most massive assembly within the entire facility. With a total weight exceeding 200 tones, the generator stands among the largest and most demanding components of the future power plant.

This assembly clearly illustrates how regional and global industrial capacities are integrated into a single system. Highly specialized components are manufactured within the region, while large structural elements are produced in major international manufacturing centers.

The generator rotor weighs more than 130 tones, while the stator, together with its stator core sheets and windings, exceeds

75 tones. The stator core sheets are manufactured in Poland, the stator housing is produced in Turkey, and the rotor poles and stator windings are manufactured at Voith’s factory near Tuzla in Bosnia and Herzegovina, ensuring that a significant share of highly specialized work is carried out within the region. Generator shafts are produced in Italy, alongside the turbine shafts.

ENDURING STRENGTH

Seen through this lens, hydro power plant Dabar stands not only as an important energy facility, but also as an example of successful integration of advanced engineering solutions, international cooperation, and modern electromechanical manufacturing.

ELNOS GROUP AND HPP DABAR

Elnos Group participates in this project as the main subcontractor for the electromechanical phase of works. The main contractor is the Chinese company China Gezhouba Group Company Ltd. (CGGC), while the investor is Elektroprivreda Republike Srpske. For the supply of capital equipment – turbines and generators – Elnos Group has engaged Voith Hydro, one of the world’s leading manufacturers of high capacity generators and turbines.

Pogled na teren A view of the site



MOĆ

THE POWER OF WIND

VJETRA

VJETAR je nevidljiva sila koja oblikuje pejzaže, klimu i način na koji proizvodimo zelenu energiju. U regiji u kojoj se prirodni potencijali sve odlučnije pretvaraju u održiva rješenja, moć vjetra izrasta u ključnog pokretača promjene. Kroz izgradnju dva vjetroparka u Srbiji i Sjevernoj Makedoniji, njegovu snagu pretočili smo u 184 MW čiste energije.

WIND is an invisible force that shapes landscapes, climates, and the way we generate green energy. In a region where natural potential is increasingly transformed into sustainable solutions, the power of wind is emerging as a driving force of change. Through the construction of two wind farms in Serbia and North Macedonia, we have translated this force into 184 MW of clean energy.



VJETROPARK ČIBUK 2

WIND PARK ČIBUK 2

PRIJATNO AVGUSTOVSKO JUTRO. *Vrijeme sunčano i toplo. Banatska ravnica se užurbano budi. Sve ukazuje na uspješan radni dan. Naša vrijedna ekipa uskoro će se okupiti. Čeka nas ekstremno zahtjevan zadatak – montaža energetskog transformatora snage 180 MVA, koji će, kada ga „spakujemo“, sa uljem u njemu, dostići masu od oko 260 tona!*

A PLEASANT AUGUST MORNING. *The air is warm, the skies are bright and the Banat plain stirs to life. All signs point to a productive day ahead. Our hardworking crew will gather soon. An extremely demanding task awaits us – the assembly of a 180 MVA power transformer which, once we pack it with oil, will weigh about 260 tons.*

SR Upravo kroz ovu sliku krećete s nama na putovanje kroz priču o izgradnji Čibuka 2 (154 MW), projekta u kojem smo tokom cijele 2025. činili dio mašinerije koja ga je gradila. Rođen u opštini Kovin, ovaj vjetropark je nastao nedaleko od mjesta gdje smo samo pet godina ranije podigli njegovog „starijeg brata“ – Čibuk 1 (158 MW).

EPICENTAR ZAOKRETA

Sinergija ova dva vjetroparka donijeće Srbiji novih 312 MW zelene energije, čime se značajno doprinosi stabilnosti elektroenergetskog sistema u zemlji i smanjenju emisije štetnih gasova. Banat na ovaj način postaje epicentar zelenog energetskog zaokreta Srbije.

Elnos Grupa je dio konzorcijuma angažovanog na ovom projektu i odgovorna je za dio radova Electrical Balance of Plant (e-BoP), koji obuhvata izgradnju elektroenergetskih objekata neophodnih za povezivanje vjetroparka s elektroenergetskom mrežom. Projekat se realizuje po principu „ključ u ruke“, što znači da nam je povjeren cjelokupan inženjering, projektovanje, nabavka opreme, instalacija i puštanje u rad.

„GIGANTSKI“ TRANSFORMATOR

Vratimo se nakratko na početak naše priče. Najveći broj radnika bio je angažovan upravo u avgustu, kada je fokus bio na montaži energetskog transformatora (180 MVA), dok su se paralelno izvodili radovi na kabliranju i povezivanju ormara u komandnoj zgradi, telekomunikacionim instalacijama, kao i ispitivanjima određenih dijelova sistema. Najviše montera bilo je angažovano iz RP tima i EMR-a, dok smo značajno pojačanje dobili od RP tima iz Banjaluke, čiji su monter preuzeli i uspješno iznijeli veliki dio posla.

Montaža energetskog transformatora svakako predstavlja jedan od „najkrupnijih zaloga“ na ovakvim projektima, a Aleksa Grubač,

projekt menadžer Elnos Grupe, detaljno nam je objasnio kompletnu dinamiku ovog zahvata.

„Sam transformator, kada je potpuno montiran, dostiže masu od oko 260 tona, od čega gotovo 70 tona čini ulje u njemu. Specifičnost i složenost ovog procesa ogleda se u činjenici da transformator na gradilište stiže u transportnom obliku i bez ulja. Nakon njegovog preciznog pozicioniranja, neophodno je povezati sve prateće dijelove – provodne izolatore, hladnjake, pumpe, ventilatore i konzervator – uz maksimalnu pažnju da se broj otvora na samom transformatoru svede na minimum kako bi se spriječio ulazak atmosferskog vazduha“, ističe Grubač.

VRHUNSKA STRUČNOST

Zbog toga se tokom čitave montaže u unutrašnjost ubrizgava suv vazduh, a u završnoj fazi, poslije višesatnog filtriranja, pažljivo se ubacuje svih 70 tona ulja.

„To je proces koji zahtijeva vrhunsku stručnost, stalnu koncentraciju i angažovanje ozbiljne mehanizacije“, napominje Grubač.

Nakon niza uspješnih zadataka koje smo obavili, uslijedila je energizacija priključno-razdvodnog postrojenja (PRP), a potom i puštanje 35/400 kV trafostanice pod napon. Time su svi krupni radovi na projektu uspješno završeni. Početkom 2026. radićemo na sprovođe-



nju testova usaglašenosti rada vjetroelektrane Čibuk 2 sa pravilima za priključenje objekata na prenosni sistem.

NAJVEĆI IZAZOVI

Najveći izazov na izgradnji vjetroparka Čibuk 2 bili su radovi na prenosnom sistemu – izgradnja nove 35/400 kV trafostanice, proširenje 400 kV postrojenja i prilagodavanje dalekovoda za veći kapacitet prenosa energije.

Vjetropark Čibuk 2 je poduhvat u okviru kojeg smo imali širok spektar zadataka: izgradnju internih saobraćajnica, projektovanje trafostanice i nabavku elektroopreme. Naš rad obuhvatio je i izgradnju nove 35/400 kV trafostanice te instalaciju kompletne elektroopreme, proširenje 400 kV postrojenja, testiranje i puštanje sistema u rad, usklađivanje sa regulativom elektroenergetske mreže, kao i integraciju SCADA sistema sa izradom pripadajućih elektroormara.

Najveći organizacijski izazov, međutim, bilo je usklađivanje dinamike izvođenja sa rokovima isporuke opreme. „U našem poslu ne zavisi sve od nas. Rokovi isporuke sve su duži, kako zbog velike potražnje, tako i zbog problema u transportu. Zato je ključno bilo pronaći balans – prilagoditi tempo radova rokovima dobavljača, a istovremeno ostati u okvirima ugovorenih obaveza“, pojašnjava Grubač. Pored toga, jedan od ključnih zadataka bio je i potpuno usklađivanje sa postojećom infrastrukturom, uključujući Čibuk 1, radi potpune sinhronizacije sa prenosnom mrežom.

Investitor projekta je UAE – finski konzorcijum Masdar i Taaleri Generation, a Elnos Grupa je ovim angažmanom potvrdila lidersku poziciju u elektroenergetici Balkana.

EN With that scene, we set out on a journey through the story of Čibuk 2 (154 MW), a project we helped develop throughout 2025. Born in the municipality of Kovin, this wind park rose close to where we had brought its older brother, Čibuk 1 (158 MW), to life only five years earlier.

EPICENTER OF THE TURN

The synergy of these two wind farms will bring Serbia an additional 312 MW of green energy, strengthening the stability of the national power system while significantly cutting emissions. With their combined output, Banat is emerging as the epicenter of Serbia’s turn toward green energy.

Elnos Group is part of the consortium engaged on this project and is responsible for the part of the Electrical Balance of Plant works (e-BoP), which includes the construction of the electrical power facilities required to connect the wind park to the electrical power network. The project is being delivered on a turnkey basis, meaning we have been entrusted with complete engineering, including design, procurement, installation, and final commissioning.

“GIANT” TRANSFORMER

Let us return for a moment to the beginning of our story. The busiest period came in August, when the team focused on assembling the 180 MVA power transformer. At the same time, teams worked on cabling and connecting the electrical cabinets inside the control building, installing telecommunications lines, and test-

ing vital parts of the system. Most of the fitters came from the RP and EMR teams, strengthened by the RP team from Banja Luka, whose members took on and skillfully completed a large share of the work.

The assembly of a power transformer is, by nature, one of the “biggest bites” on projects like this. Aleksa Grubač, Project Manager at Elnos Group, explained the dynamics of the project in detail.

“When fully assembled, the transformer weighs around 260 tons, nearly 70 of which are taken up by oil. What makes the process specific and complex is that the transformer arrives on site in its transport configuration, without oil. After precise positioning, all associated components must be connected – bushings, radiators, pumps, fans, and the conservator – with utmost care to keep the number of openings on the transformer as low as possible in order to prevent atmospheric air from seeping in,” Grubač notes.

EXCEPTIONAL EXPERTISE

For this reason, dry air is injected into the interior during the assembly, and in the final stage, after hours of filtration, all 70 tons of oil are carefully poured in.

“It’s a process that calls for exceptional expertise, unwavering focus, and the power of heavy machinery,” Grubač adds.

After a series of successful tasks, the connection and distribution plant (CDP) was energized, followed by switching the 35/400 kV substation to voltage. All major works on the project were thus successfully completed. Beginning 2026, we will conduct compliance tests to ensure that wind park Čibuk 2 operates in accordance with the rules for connection of facilities to the transmission system.

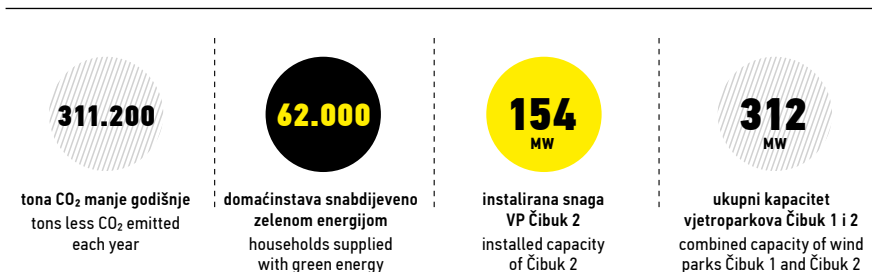
THE GREATEST CHALLENGES

The most demanding stage in constructing the Čibuk 2 wind farm was the work on the transmission system – building a new 35/400 kV substation, expanding the 400 kV switchyard, and upgrading the transmission line to handle greater capacity.

Čibuk 2 brought together a broad and complex range of responsibilities, from building internal access roads and designing the substation to procuring electrical equipment. Our works also included construction of a new 35/400 kV substation, the installation of all associated systems, the expansion of the 400 kV switchyard, and the testing and com-

Brojke

Figures



missioning of every segment. It also required ensuring full compliance with national electrical power network regulations and integrating the SCADA system, including corresponding control cabinets.

The greatest organizational challenge lay in synchronizing construction progress with equipment delivery schedules. "In our line of work, not everything depends on us. Delivery times keep growing longer – partly due to increased demand, partly because of transport delays. The key was to find balance: to align our pace with supplier timelines while still meeting every contractual deadline," Grubač explains. Another essential task was ensuring full compatibility with the existing infrastructure, Čibuk 1 included, to ensure seamless synchronization with the transmission network.

The project's investor, the UAE-Finnish consortium Masdar and Taaleri Generation, entrusted Elnos Group with a role through which the company once again affirmed its position as a regional leader in the Balkan energy sector.



Montaža energetskog transformatora teškog 260 t Assembling a power transformer weighing 260 t

VJETROPARK PERUN

WIND PARK PERUN

SJEVERNA MAKEDONIJA polako, ali odlučno učvršćuje svoje mjesto na mapi zemalja koje ozbiljno grade put ka zelenoj energetskoj tranziciji, uz rast investicija u oblastima vjetroenergije i sve jasniju viziju napuštanja upotrebe uglja. U ovom aktuelnom zelenom kontekstu, izgradnja vjetroparka Perun (30 MW) novi je i važan iskorak ka energetskoj budućnosti zemlje.

NORTH MACEDONIA is steadily strengthening its place among the countries that are building a clear path toward a green energy transition. Investments in wind power are increasing, and the country's vision of leaving coal behind is becoming more defined with each new project. Within this green momentum, the construction of wind park Perun, with an installed capacity of 30 MW, marks an important step toward the country's energy future.

SR Elnos Grupa predstavlja kičmu ovog velikog i složenog projekta, koji je na gradilištu svakodnevno zahtijevao angažovanje više od 40 naših kolega.

Prije svakog početka smjene, naše ekipe pažljivo su krojile detaljne planove za narednih desetak sati, ispunjenih obavezama. Predviđena dinamika radova nije ostavljala ni sekund vremena za gubljenje.

Vjetropark Perun ponikao je na samom jugu zemlje, u mjestu Bogdanci, u selu Stojakovo. „Pružio se“ na površini od 515.736 metara kvadratnih.

Obim poslova Elnos Grupe ovog puta bio je znatno veći i odgovorniji u odnosu na prethodne projekte iz oblasti vjetroenergije u zemlji sunca, pjesme i vina, jer smo nastupili kao solution provider. Ključna je upravo bila 2025. godina.

SOLUTION PROVIDER

Biti solution provider na ovom projektu značilo je preuzeti odgovornost za svaki aspekt životnog ciklusa vjetroparka Perun – od dizajna do izgradnje, testiranja i puštanja u rad. Projekat kao što je vjetropark Perun predstavljao je pravi test naše sposobnosti da se nosimo sa složenim zadacima pružajući pouzdana i održiva rješenja koja zadovoljavaju najviše standarde. Ovo je značilo dosegnuti nove domete inženjeringa i timskog rada.

„Iza nas su mjeseci teškog rada – po deset sati dnevno, na kiši, vjetru i pod žegom. Ljeti smo počinjali u cik zore, jer je jedino tada bilo moguće raditi prije nego što sunce preuzme gradilište“, rekao je Kristijan Ainovski, direktor Elnosa Sjeverna Makedonija.

KORAK PO KORAK KA ENERGIJIZACIJI

Priprema za energizaciju trafostanice Perun nije bila nimalo jednostavan proces. Svaki detalj brižljivo smo osmislili i realizovali te smo bili podjednako temeljni na svim objektima na kojima smo uporedo radili – vjetroparku, 110/33 kV trafostanici Perun, priključnom 2 x 110 kV dalekovodu i rekonstrukciji postojećeg 110 kV dalekovoda Đevdelija – Bogdanci.

Ainovski je pojasnio da smo u ovoj godini imali niz zaduženja koja su se odnosila na pripremu vjetroparka za energizaciju.

„Bilo je potrebno kompletno provjeriti funkcionalnost instalirane opreme, podešavanje zaštite, upravljanje i SCADA. Trebalo je paralelno pripremiti ‘As built’ tehničku dokumentaciju i detaljno pregledati novi priključni 2 x 110 kV dalekovod, kao i postojeći 110 kV dalekovod Đevdelija-Bogdanci, preko kojeg se ostvaruje veza sa postojećom trafostanicom Đevdelija. Ništa nije smjelo ostati prepušteno slučaju – sve je moralo biti potpuno ispravno i spremno za sigurno pokretanje sistema kako bi bilo spremno za energizaciju“, pojašnjava Ainovski.

NIZ SLOŽENIH ZADATAKA

Vjetropark Perun danas je rezultat niza složenih zadataka, koji su zahtijevali besprijekornu stručnost i predanost. Od instalacije srednjonaponskih kablova i uzemljenja vjetroturbina, preko izgradnje 33/110 kV trafostanice i podizanja priključnih dalekovoda, svemu je pristupano sa najvećom dozom posvećenosti.

Izazova je bilo napretek. Prema riječima naših kolega, radilo se po deset sati dnevno,

po svim mogućim vremenskim uslovima – od „proloma oblaka“, preko silovitog vjetra, do nesnošljivih vrućina. U takvim okolnostima ključan je dogovor među članovima timova, po principu „jedan tim, jedna snaga“. Nesebičnim radom sve bude završeno kvalitetno i u roku.

PRILAGOĐAVANJE DALEKOVODA

Vrhunac aktivnosti na ovom planu, dodaje Ainovski, bio je u drugoj polovini 2025. godine, kada su izvedeni kritični radovi za priključak na novo 110 kV polje u trafostanici Đevdelija, kao i priključak sa novim 2 x 110 kV dalekovodom prema trafostanici Perun.

„Preko dalekovoda Đevdelija-Bogdanci ostvaruje se veza sa postojećom trafostanicom Đevdelija. Specifično, do sada je radio samo na naponskom nivou od 35 kV. Uspješnim izvođenjem, za sada dijela rekonstrukcije, izvršeno je prilagođavanje dalekovoda za rad na 110 kV“, precizirao je Ainovski.

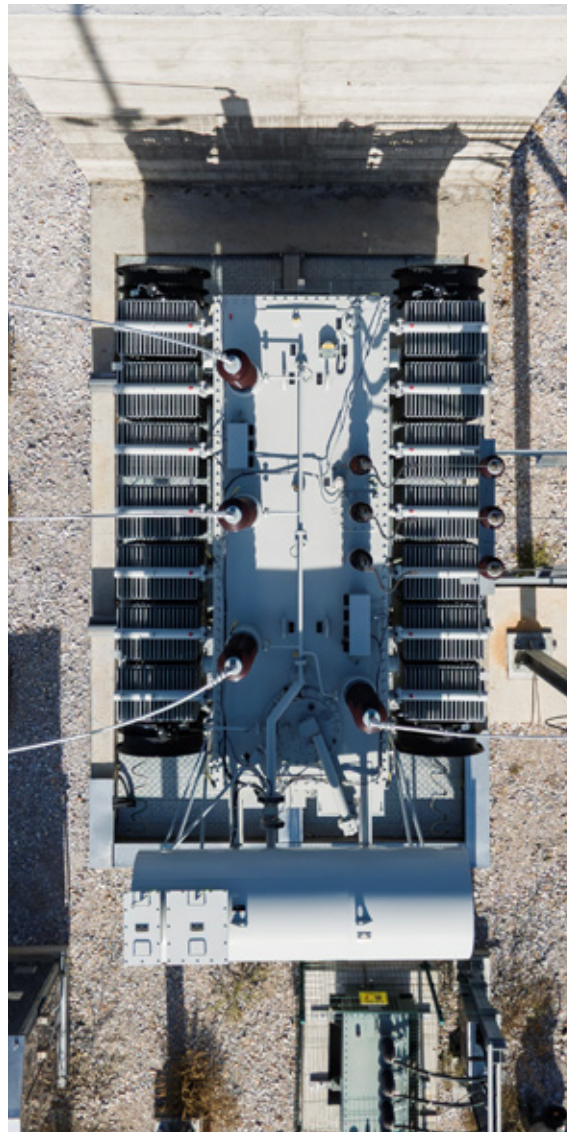
ZAHTJEVNI RADOVI

Inače, trasa dalekovoda Đevdelija-Bogdanci vodi kroz pretežno ravničarski i brdski teren te se ukršta sa više infrastrukturnih objekata – željeznicom, NN i SN vodovima, auto-putem, ali i rijekom Vardar, kao i sa 400 kV dalekovodom prema Grčkoj. Zbog toga su radovi bili izuzetno zahtjevni i podrazumijevali su saradnju sa drugim institucijama.

„Neophodna je bila besprijekorna koordinacija i saradnja sa različitim institucijama: Željeznicama Republike Sjeverne Makedonije, Javnim preduzećem za puteve, AD MEPSO, EVN Makedonija i drugima“, naglašava Ainovski.

EN Elnos Group is the backbone of this large and demanding project, which has required the daily effort of more than 40 colleagues on site. Before each shift, our teams carefully prepared detailed plans for the next ten hours, filled with responsibilities. The set pace of work left not a single moment to waste.

Snaga u srcu sistema System core power



And thus Perun rose in the far south of the country, in the municipality of Bogdanci, in the village of Stojakovo, spreading across 515,736 square meters of open land.

The scope of Elnos Group's work was this time much greater and more demanding than on previous wind energy projects in this land of sun, song, and wine, because we acted as a solution provider. The year 2025 was the turning point.

SOLUTION PROVIDER

Being a solution provider on this project meant taking full responsibility for every stage in the life cycle of wind park Perun — from design and construction to testing and commissioning. A project such as Perun was a true test of our ability to handle complex tasks while delivering reliable and sustainable solutions that meet the highest standards. It required us to reach new levels of engineering and teamwork. "Months of hard work now lie behind us, ten

Solution providing – od ideje do realizacije
Solution providing – from concept to completion



hours each day spent in rain, wind, and heat. During summer, we began work at dawn, the only part of the day when the heat still allowed us to do our job before the sun took hold of the site," said Kristijan Ainovski, Director of Elnos North Macedonia.

STEP BY STEP TOWARD ENERGIZATION

Preparing substation Perun for energization was by no means a simple process. Every detail was carefully planned and carried out, and we approached all simultaneous tasks with equal precision — work on the wind park, the 110/33 kV substation Perun, the new 2 x 110 kV transmission line, and the reconstruction of the existing 110 kV line Gevgelija-Bogdanci. Ainovski explained that throughout this year, our responsibilities were focused on preparing the wind park for energization.

"It was necessary to check the full functionality of the installed equipment, set up protection, control, and SCADA systems. In parallel, we prepared the 'as-built' technical documentation and thoroughly inspected both the new 2 x 110 kV connection transmission line and the existing 110 kV transmission line Gevgelija-Bogdanci, which provides the link with the Gevgelija substation. Nothing could be left to chance. Everything had to be completely correct and ready for a safe system start-up," Ainovski said.

SERIES OF COMPLEX TASKS

Wind park Perun today stands as the result of a series of complex tasks that demanded impeccable expertise and commitment. From installing medium-voltage cables and grounding the wind turbines to building the 33/110 kV substation and erecting the connection transmission lines, every stage was carried out with the highest level of dedication.

There was no shortage of challenges. Our colleagues recall working ten hours a day through every kind of weather, from downpours and strong winds to the fiercest summer heat. In such circumstances, cooperation among team members was crucial, guided by the principle of "one team, one purpose." Through selfless work, works were completed with quality and on time.

ADAPTING THE TRANSMISSION LINE

The peak of activity in this phase, Ainovski added, came in the second half of 2025, when critical works were carried out to connect the new 110 kV bay in the substation Gevgelija with

the new 2 x 110 kV transmission line running toward substation Perun.

"The Gevgelija-Bogdanci transmission line provides the connection with the existing substation Gevgelija. Until now, it had operated only at a voltage level of 35 kV. With the successful execution of part of the reconstruction, the line was adapted to operate at 110 kV," Ainovski specified.

CHALLENGING WORK

The route of the Gevgelija-Bogdanci transmission line passes through sections of both hilly and flat terrain and crosses several types of infrastructure, including a railway, low- and medium-voltage lines, a motorway, the Vardar River, and even the 400 kV transmission line toward Greece. These conditions made the work exceptionally demanding and required close cooperation with other institutions.

"Flawless coordination and collaboration were essential, involving various institutions such as the Railways of the Republic of North Macedonia, the Public Enterprise for Roads, AD MEPSO, EVN Macedonia, and others," Ainovski emphasized.

Brojke

Figures

51.5

hektara obuhvata
vjetropark Perun
hectares – area of
wind park Perun

3

vjetroparka u Sjevernoj
Makedoniji imaju naš „pečat“
wind parks in North
Macedonia bear our mark

JUBILEJ ZA PAMĆENJE, PROSLAVA ZA NEZABORAV!

JUBILEE TO REMEMBER,
CELEBRATION TO CHERISH



SR Elnos Grupa je 27. novembra u beogradskom Sava centru obilježila dvostruki jubilej – 80 godina tradicije i 30 godina savremenog poslovanja.

Bio je to spoj energije, ljudi i ideja koji je veče pretvorio u doživljaj koji se pamti. Umjesto klasične ceremonije, publika je zakoračila u noć ispunjenu pokretom, digitalnim animacijama, emocijama i iznenađenjima. Gosti iz cijelog regiona i Evrope dijelili su prostor Immersive sale koji je disao zajedništvom i pozitivnom energijom.

Nakon ove večeri u Sava centru, jedno je jasno: Elnos Grupa ulazi u naredne decenije snažno, samouvjereno i fokusirano – sa rezultatima kao mjerom uspjeha i timskom energijom kao trajnim potpisom.

JUG I SJEVER ELNOSOVE MAPE U ZNAKU ROĐENDANA

Dok se slavilo u Beogradu, jubileji su obilježeni i na krajnjim tačkama Elnosove mape. Elnos Sjeverna Makedonija proslavila je 15, a Elnos Island deset godina rada.

Rođendani ove dvije članice potvrđuju snagu Grupe – rezultate koji su temelj budućeg rasta, ali i jasnu posvećenost inovacijama, razvoju i projektima zelene energije.

Riječ predsjednika Elnos Grupe Message from the President of Elnos Group





EN On November 27, at Belgrade's Sava Center, Elnos Group marked a double anniversary: 80 years of tradition and 30 years of modern business.

It was an evening where energy, people, and ideas moved as one, transforming a formal date on the calendar into a lasting experience for those present. Instead of a classic ceremony, the audience stepped into a night defined by movement, digital animation, emotion, and carefully timed surprises. Visitors from across the region and Europe filled the Immersive Hall, a space that seemed to breathe with a shared sense of belonging and positive energy.

After this night at the Sava Center, one thing is clear: Elnos Group is entering the coming decades with strength, confidence, and focus, guided by results as its measure of success and by team energy as its enduring signature.

MILESTONES AT THE FAR EDGES OF THE ELNOS MAP

While Belgrade was celebrating, anniversaries were also observed at the far reaches of the Elnos map. Elnos North Macedonia reached its fifteenth year, while Elnos Iceland marked a decade of work. Together, these milestones reflect the strength of the Group as a whole, built on the results that sustain future growth and on a long-term commitment to innovation, development, and green energy projects.



Zajedništvo kao potpis Unity as the imprint



Energija, pokret i dobro raspoloženje Energy, movement and good spirits



ELNOS
GROUP

Naš potpis su rezultati, ne velike riječi

RESULTS SPEAK
LOUDER THAN WORDS

SR Kompanija baštini 80 godina nasljeđa i obilježava 30 godina postojanja. Šta je teže čuvati – tradiciju ili poziciju u budućnosti?

Torbica: Mislite li, zapravo, šta je lakše, jer kada oko sebe imate snažan tim koji dobro funkcioniše, nemate osjećaj da nešto čuvate, već da uvijek gradite. Šalu na stranu – suština je u sljedećem: naučili smo da se tržišta mijenjaju, da tehnologije napreduju, ali ono što čini razliku jesu ljudi. Oni ostaju. Oni su kičma svega. Ja imam sreću da uz svoju sjajnu porodicu, koja je izvor moje snage, imam još jednu – veliku porodicu Elnos Grupu. U takvom radnom ambijentu lako je nositi trofeje iz prošlosti i osvajati nove. Zahvaljujući sposobnosti mojih saradnika da donose jasne odluke, grade sisteme i vode druge kroz kompleksne izazove, ja sam poput kormilara na mirnom moru. Na čelu Elnos Grupe je, uz mene, tim koji spaja tehničku ekspertizu, stratešku viziju i operativnu dosljednost. Zašto je to važno? U energetici nema improvizacije. Samo sistemski izvrsnost i timska odgovornost mogu garantovati efikasnost.

Često naglašavate, a, evo, i sad se iz Vaših riječi može zaključiti – da je kompanija prije svega zajednica ljudi, a ne mašina i sistem. Kako ste uspjeli sačuvati osjećaj pripadnosti i međusobnog povjerenja u ovako velikoj organizaciji?

Torbica: Tako što sve ljude okupljene oko naše velike vizije upravo tako i posmatram – kao složan tim, čiji je svaki član opredijeljen da doprinosi ukupnom uspjehu. Takav sistem uvijek funkcioniše. Sve je tako i počelo – Elnos Grupa je, podsjetiću vas, nastala u porodičnoj kući, sa dvoje zaposlenih, a danas radimo širom Evrope. Danas smo grupacija sa više od 900 zaposlenih koja je dovoljno velika da preuzme najzahtjevnije poslove. Zahvalan sam, zbog toga, prije svega našim zaposlenima. Njihov potpis su pune ruke posla, a ne velike riječi. Zahvalan sam, svakako, i našim partnerima – znamo da se povjerenje gradi dugoročno i zaslužuje se doslovno svaki dan, svaki sat. Pored zajedničkog duha u našem kolektivu, još bih dodao nešto što smatram suštinom uspjeha: naš menadžment ne donosi odluke iz kancelarije, već sa terena. Uvijek smo blizu projektima, ljudima i partnerima. To je u energetici zaista ključno.

ELNOS GRUPA, sa više od 900 zaposlenih, funkcioniše kao jedan veliki sistem koji diše timski, čiji su članovi spremni da se uhvate ukoštac sa svakim izazovom.

Na tome sam zahvalan svim našim zaposlenima. Njihov potpis u pune ruke posla, a ne velike riječi.

Poručuje to Dušan Torbica, predsjednik Elnos Grupe, u godini kada kompanija obilježava veliki jubilej, podsjećajući da je njen poslovni put započeo u porodičnoj kući, a danas vodi kroz 18 zemalja Evrope.

„U svim tim državama tri pravila su ista: rok, kvalitet, sigurnost“, naglašava Torbica.

ELNOS GROUP, with more than 900 employees, operates as a single system where every person stands ready to take on a challenge. For that, I'm grateful to all our employees. They stand out for what they deliver, not what they declare.

Those are the words of Dušan Torbica, President of Elnos Group, as the company celebrates a milestone year. He remembers starting out in a family home and leading a business that now operates in 18 European countries. "Wherever we work," he adds, "we adhere to three unwavering principles: delivering safely, on time and with quality."

Elnos Grupa je podjednako uspješna i na domaćem i na brojnim evropskim tržištima. Koji je „recept“ za to?

Torbica: Da, Elnos Grupa danas radi širom Evrope. U svim tim zemljama, njih ukupno 18, tri pravila su ista: rok, kvalitet, sigurnost. To je naš standard. Dovoljno smo fleksibilni da se prilagodimo svakoj regulativi, klimi, terenu. To je naša prednost: evropski domet, lokalna agilnost. Radimo EPC projekte, modernizujemo mreže, ubrzavamo priključenja obnovljivih izvora, uvodimo digitalnu efikasnost. Imamo bezrezervno povjerenje naših partnera. Zašto? Kada se dogovorimo, stižemo na vrijeme. Kada se okolnosti promijene, ne tražimo izgovor, nego rješenje. Donošenje odluke na terenu nije fraza, već naša dnevna praksa. Energetska tranzicija traži pouzdane izvođače i brzinu bez kompromisa. Mi smo tu da te zahtjeve ispunimo.

Dušan Torbica, predsjednik Elnos Grupe
Dušan Torbica, President of Elnos Group

Šta danas povezuje Elnos Grupu – ljudi, projekti ili energija? Kako izgleda energetska mapa Elnos Grupe danas?

Torbica: Ljudi donose energiju, projekti je prenose, a mi smo kompanija koja sve to danas uspješno povezuje. Prisutni smo tamo gdje energetske sistemi rastu. Elnos Grupa uspješno posluje od Skandinavije do Jugoistočne Evrope. Našu mrežu čine stabilni resursni centri u šest zemalja i kompanije članice koje realizuju kompleksne projekte u energetici, infrastrukturi i industriji – od projektovanja do EPC izvođenja i digitalizacije. Naša mreža članica omogućava nam lokalizovanu isporuku i podršku u cijeloj Evropi. Rastući kapaciteti, dugoročna partnerstva i prisustvo na velikim energetskim projektima čine nas prepoznatljivim u svim fazama energetske tranzicije – od obnovljivih izvora i trafostanica do digitalizacije i industrijske automatizacije. Djelujemo kroz više od 20 pravnih lica i predstavništava koja su organizovana u skladu sa lokalnim zakonodavstvom i standardima. Ovakva organizacija omogućava nam visok stepen fleksibilnosti, konkurentne rokove i snažnu tehničku podršku.

Energetika uveliko korača kroz novu eru. Gdje vidite ulogu Elnos Grupe u sljedećih 10 godina? Da li će kompanija biti graditelj, inovator ili čuvar stabilnosti?

Torbica: Rekao bih – i jedno, i drugo, i treće. Za to imamo čvrst temelj. Naša reputacija izgrađena je kroz rad sa vodećim evropskim kompanijama, kao i kroz učešće u projektima koji oblikuju budućnost energetike. U proteklih deceni-

jama realizovali smo više od 1.000 kompleksnih projekata širom kontinenta, uz stalno širenje geografskog dometa i tehničkih kapaciteta. Djelujući u više zemalja, članice Elnos Grupe preuzimaju različite, ali povezane uloge koje zajedno čine cjelinu našeg poslovnog sistema.

Neke su eksperti za izvođenje radova na terenu. Druge su centri za projektovanje i inženjering, sa timovima koji stvaraju kompleksna tehnička rješenja. Treće se bave proizvodnjom i montažom opreme, održavanjem i digitalnim integracijama. Ova funkcionalna raznolikost čini Elnos Grupu fleksibilnim i pouzdanim sistemom – sposobnim da samostalno upravlja i najkompleksnijim projektima. Stakvom podlogom i u narednim decenijama možemo biti i graditelj, inovator ili čuvar stabilnosti.

Sigurno Vam ogromno zadovoljstvo pričinjava to što stotine porodica danas imaju budućnost zahvaljujući Elnosu. Kako se nosite sa tom vrstom odgovornosti – kada rad više nije samo tržište, nego život ljudi?

Torbica: Naravno da to pričinjava zadovoljstvo, ali i obavezu. Kako se nosim s tom vrstom odgovornosti? Tako što smo napravili kadrovsku piramidu u kojoj sve funkcioniše pouzdano i usklađeno. Naš tim čine ljudi sa znanjem. Sa iskustvom. Sa voljom. Sa ambicijom. U takvom poslovnom okruženju, biti na vrhu piramide vam predstavlja privilegiju i uliva motivaciju. Uloga mene kao lidera je da budem most između iskustva i inovacije, između stabilnosti i promjene. To je put kojim Elnos Grupa ide već 30 godina, baštineći tradiciju dugu 80 godina. Tako smo

počeli, tako radimo i danas. Mi ove godine, kada imamo veliki jubilej, ne slavimo obećanja, već tradiciju i rezultate.

Gdje usmjeravate svoj pogled ka 2026. i kakvu ulogu u toj slici ima Elnos Grupa?

Torbica: U godini pred nama energetika će nastaviti tražiti ravnotežu između sigurnosti snabdijevanja i ubrzane tranzicije. Upravo između težnje ka stabilnosti i potrebe za inoviranjem dešavaće se ključni koraci koji će oblikovati energetske budućnosti. Naši planovi usklađeni su s evropskim energetskim ciljevima, ali su jednako čvrsto ukorijenjeni u regiji iz koje potičemo. I u 2026. godini nastavićemo jačati svoju ulogu, izvođeci projekte koji povezuju stabilnost mreža, obnovljive izvore i nove tehnologije. Želimo biti još prisutniji, brži i bliži partnerima koji zajedno s nama grade energetske budućnosti. Jer budućnost se ne čeka – ona se gradi, dosljedno i predano, projekat po projekat, megavat po megavat.

Ako biste morali jednu poruku ostaviti generaciji koja će Vas naslijediti, kako bi ona glasila?

Torbica: Rekao bih im: Zapamtite, ljudi su kapital. Kroz sve ove decenije iza nas, znali smo jedno – bez zadovoljnog radnika, ne možemo očekivati rezultate. Njihovo zadovoljstvo je garancija uspjeha. Ljudi čine kompaniju uspješnom, a ne obrnuto. Kada radnik „raste“, raste i kompanija. Kada članove vašeg tima motivišete, ne postoje granice. Svaki kolektiv imaće svijetlu budućnost kada je u epicentru njegove pažnje čovjek. Trendovi se mijenjaju, pravila na tržištu takođe, ali kada imate kvalitetan kadar, sposobni ste da uspješno savladate svaki izazov.

Budućnost se ne čeka, ona se gradi The future is not waited for. It is built.

EN Elnos Group, with more than 900 employees, operates as a single system where every person stands ready to take on a challenge. For that, I'm grateful to all our employees. They stand out for what they deliver, not what they declare. Those are the words of Dušan Torbica, President of Elnos Group, as the company celebrates a milestone year. He remembers starting out in a family home and leading a business that now operates in 18 European countries. "Wherever we work," he adds, "we adhere to three unwavering principles: delivering safely, on time and with quality."

The company upholds an 80-year heritage while marking 30 years of its own growth. Which is harder to preserve — tradition or the position in the future?

Torbica: Perhaps the better question is which of the two is easier, because when you have a



strong team that works well you do not feel you are preserving anything. You are constantly building. Joking aside, the essence is this: markets change, technology moves forward, but people make the difference. They stay. They are the backbone of everything. I am fortunate that, along with my family who are my source of strength, I also have another, the wider Elnos Group family. In such an environment it is easy to carry trophies from the past and win new ones. Thanks to my colleagues' ability to make clear decisions, build systems and guide others through complex challenges, I often feel like a helmsman on calm seas. At the head of Elnos Group stands a team that combines technical expertise, strategic vision and operational discipline. Why does that matter? In energy there is no room for improvisation. Only disciplined excellence and shared responsibility deliver efficiency.

You often point out, and it's clear again from what you've just said, that the company is, above all, a community of people rather than a network of machines and systems. How have you managed to keep a sense of belonging and mutual trust within such a large organization?

Torbica: By viewing everyone united around our vision as part of a single team where each person takes responsibility for the group's success. A structure like that always works. That's how we began — Elnos Group started in a family home with two employees, and today we operate throughout Europe. We are now a company of more than 900 people, large enough to take on the most demanding projects. This strength comes from our employees, to whom I owe my deepest thanks. They stand out for what they deliver, not what they declare. I am equally grateful to our partners, knowing that trust is built over years and earned every day, hour by hour. Beyond our collective spirit, I would add something I see as the core of success: our management makes decision not from the office but on the site. We stay close to our projects, our people, and our partners. In power engineering, that closeness is essential.

Elnos Group is equally successful at home and in the European markets. What is the "recipe"?

Torbica: Elnos Group operates throughout Europe. Wherever we work, we adhere to three unwavering principles: delivering safely, on time and with quality. These are the foundations of our work. We are flexible enough to adapt to any regulation, climate or terrain and that is our key advantage: a European presence combined with local agility. We deliver EPC projects, mod-

ernize networks, accelerate renewable energy connections and bring digital efficiency to our operations. Our partners place complete trust in us, and for good reason. When we make an agreement, we deliver on time. When conditions change, we do not look for excuses, we find solutions. Making decisions on the site is not a slogan, it is our everyday practice. The energy transition demands reliability and speed without compromise, and we are here to meet that demand.

What connects Elnos Group today — people, projects, or energy? What does your energy map look like now?

Torbica: People bring energy, projects transmit it, and our company connects every part of that process. We are present wherever energy systems are growing. Elnos Group operates from Scandinavia to Southeast Europe. Our network consists of strong resource centers in six countries and member companies that carry out complex projects in power engineering, infrastructure and industry, from design and engineering to EPC implementation and digitalization. This structure allows us to provide local delivery and support throughout Europe. Our growing capacity, long-term partnerships and participation in major energy projects make us a trusted partner in every stage of the energy transition, from renewables and substations to digitalization and industrial automation. We operate through more than 20 legal entities and representative offices organized in accordance with local laws and standards. This organization provides flexibility, competitive timelines and strong technical support.

Power engineering is entering a new era. Over the next 10 years, will Elnos Group be a builder, an innovator, or a guardian of stability?

Torbica: All three, I believe. We have the foundation to fulfill each of those roles. Our reputation rests on collaboration with leading European companies and on projects that define the future of power engineering. In recent decades we have completed more than 1,000 complex projects across the continent, steadily expanding both our reach and technical expertise. Operating in many countries, Elnos Group members take on complementary roles that together form a unified system. Some focus on on-site execution, others on design and engineering, while the rest specialize in equipment production, installation, maintenance and digital integration. This functional diversity makes Elnos Group a flexible and reliable organization, capable of managing even the most complex projects independently.

With such strength behind us, we can continue to be a builder, an innovator and a guardian of stability in the decades ahead.

It must be deeply rewarding to know that hundreds of families see their future with Elnos. How do you handle that kind of responsibility, knowing that the company's work shapes people's lives as much as the market?

Torbica: It is both a privilege and a responsibility. I approach it through a structure we have built together, one that operates reliably and efficiently. Our team is made up of people with knowledge, experience, determination and ambition. In such an environment, leading that structure is both a privilege and a source of motivation. My role as a leader is to bridge experience and innovation, stability and change. That is the path Elnos Group has followed for 30 years, upholding an 80-year tradition. That is how we started, and that is how we continue to work today. This year, as we mark a major anniversary, our celebration is not about promises, but about tradition and results.

Looking to 2026, where do you set your focus, and what role will Elnos Group play?

Torbica: In the year ahead, power engineering will keep seeking balance between security of supply and accelerated transition. It is between the drive for stability and the need for innovation that the key steps will occur. Our plans align with Europe's energy goals and are firmly rooted in the region we come from. In 2026 we will continue to strengthen our role through projects that connect grid stability, renewables, and new technologies. We want to be even more present, faster, and closer to partners who build the energy future with us. Because the future is not something to wait for — it is built, steadily and with dedication, project by project, megawatt by megawatt.

If you were to leave one message for the next generation, what would it be?

Torbica: I would tell them this: remember, people are your true capital. Over all these decades, we have learned one thing — without satisfied employees, there can be no results. Their satisfaction is the guarantee of success. It is people who make a company successful, not the other way around. When employees "grow", the company grows with them. When you motivate your team, there are no limits. Every organization has a bright future when people remain at the heart of its focus. Trends change, market rules shift, but with capable and committed people, every challenge can be met.

SWE

ŠVEDSKA: EPC KAO TEMELJ NOVIH UGOVORA SWEDEN: EPC AS THE FOUNDATION FOR NEW CONTRACTS

SR Elnos Nordic AB potpisao je EPC ugovor za izgradnju trafostanice Granninge u Švedskoj za E.ON Sverige, čime je još jednom potvrđena snažna pozicija kompanije na jednom od najzahtjevnijih energetske tržišta u Evropi.

Projekat će biti realizovan po principu „ključ u ruke“ i obuhvata kompletan obim radova – od inženjeringa i nabavke opreme do izgradnje i puštanja u rad. Početak izvođenja radova planiran je za proljeće 2026. godine.

„Trafostanica Granninge imaće važnu ulogu u povezivanju lokalne hidro-elektrane na području Sollefteå sa prenosnom mrežom, a u narednoj fazi biće povezana i sa trafostanicom Bispgården, čime će se dodatno ojačati regionalni elektroenergetski sistem“, rekao je Nenad Vukomanović, direktor Elnos Nordica AB.

Pored ovog EPC projekta, Elnos Nordic AB je krajem 2025. godine otvorio gradilišta trafostanica Nybro i Hemsjö naponskog nivoa 400 kV za kompaniju Siemens Energy. Takođe, ugovorena je i izgradnja trafostanice Bäsna naponskog nivoa 400 kV u saradnji sa kompanijom Omexom.

EN Elnos Nordic AB has signed an EPC contract for the construction of the Granninge substation in Sweden for E.ON Sverige, confirming its strong position in one of Europe’s most demanding energy markets.

The project will be delivered on a turnkey basis, covering the entire scope – from engineering and equipment procurement to construction and commissioning – with works scheduled to commence in spring 2026.

“The Granninge substation will play a key role in connecting a local hydro-power plant in the Sollefteå area to the transmission grid and will later be linked to the Bispgården substation, further strengthening the regional power network“, said Nenad Vukomanović, Director of Elnos Nordic AB.

In addition to this EPC project, Elnos Nordic AB opened construction sites for the 400 kV Nybro and Hemsjö substations for Siemens Energy at the end of 2025. The company has also contracted the construction of the 400 kV Bäsna substation in cooperation with Omexom.



RUMUNIJA: KADA TEŠKA INDUSTRIJA DIŠE NA SOLARNI POGON ROMANIA: WHEN HEAVY INDUSTRY BREATHES ON SOLAR POWER

SR Brojni veliki industrijski sistemi širom svijeta sve više se oslanjaju na obnovljive izvore energije, a jedan od njih je i željezara Tenaris-Silcotub u gradu Kalaraši, u Rumuniji, koja je izgradila solarnu elektranu snage 20 MW. Njeni benefiti su proizvodnja više od 30 GWh godišnje i značajno smanjenje emisije CO₂. Elnos Grupa bila je dio ovog procesa – naši timovi omogućili su da se zelena energija integriše tamo gdje je najpotrebnija: u srcu teške industrije.

U 2025. godini povjereni su nam novi poslovi u ovom velikom privrednom gigantu. Prema riječima Radenka Škora, vodećeg inženjera za automatizaciju i SCADA sisteme u Elnos Grupi, u trafostanici 110/10 kV, gdje smo prethodno tokom 2024. godine integrirali SCADA sistem, sada smo projektovali i ugradili dodatne ormare i PLC-ove i povezali ih sa postojećom infrastrukturom.

„Time je otvoren put da solarna energija bude uključena u napajanje proizvodnih pogona“, naglasio je Škoro.

Podsjećamo, u prethodne dvije godine naši timovi su u ovoj željezari realizovali niz složenih zadataka, čime smo obezbijedili njeno pouzdano napajanje.

EN Around the world, major industrial complexes are increasingly turning to renewable energy. One of them is the Tenaris–Silcotub, a steel plant in Călărași, Romania, where a 20 MW solar power plant now delivers more than 30 GWh annually and sharply reduces CO₂ emissions.

Elnos Group has been part of this transition, with our teams enabling green energy to be integrated where it is needed most, at the core of heavy industry.

In 2025, we took on new tasks for this industrial giant. As Radenko Škoro, Lead Engineer for Automation and SCADA Systems at Elnos Group explains, at the 110/10 kV substation where a SCADA system had been integrated in 2024, we designed and installed additional cabinets and PLCs and connected them with the existing infrastructure.

“This has opened the way for solar energy to power the production facilities,” Škoro emphasized.

Over the past two years, our teams have completed a series of demanding assignments at this steel plant, ensuring the long-term reliability of its power supply.



SLOVENIJA: NAKON DVIJE I PO GODINE VELIKI IZAZOV SAVLADAN SLOVENIA: AFTER TWO AND A HALF YEARS, A MAJOR CHALLENGE OVERCOME

SLO

SR Nakon 61 godinu rada, jednosistemski dalekovod Hudo-Kočevje u Sloveniji otišao je u zasluženu penziju. Svoje zadatke “predao” je novom, 2x110 kV DV, koji je nastajao oko dvije i po godine. I gotovo kompletan taj period, stari dalekovod je bio pod naponom! Možete li zamisliti o kolikom izazovu je riječ?

Naša priča na ovom zahtjevnom projektu trajala je od aprila 2023. do oktobra 2025. godine. Ukupna dužina dalekovoda iznosi 32,8 kilometara, a timovi ENS Slovenije su izvodili radove na oko 15,5 kilometara trase. Kao jedan od dva glavna izvođača u okviru konzorcijuma, ekipe ENS Slovenije su bile zadužene za demontažu postojećih stubova i provodnika, montažu novih stubova, kao i izvođenje elektromontažnih radova.

“Poseban izazov predstavljali su građevinski radovi i ugradnja temelja stubova dok je postojeći dalekovod bio pod naponom”, ističe Franci Milhar, vođa projekta ENS Slovenije.

Novi dalekovod je unaprijedio sigurnost i stabilnost elektroenergetske mreže te omogućio veću integraciju obnovljivih izvora energije.

EN After 61 years of operation, the single-circuit Hudo-Kočevje transmission line in Slovenia has officially been retired. Its role has been taken over by a new 2x110 kV double-circuit line, constructed over a period of approximately two and a half years — while the old line remained energized for almost the entire time. The scale of this challenge is hard to overstate.

Our involvement in this demanding project lasted from April 2023 to October 2025. The total length of the transmission line is 32.8 kilometers, with ENS Slovenia teams carrying out works along approximately 15.5 kilometers of the route. As one of two main contractors within the consortium, ENS Slovenia was responsible for dismantling the existing towers and conductors, installing new towers, and performing all electrical installation works.

“One of the greatest challenges was carrying out civil works and installing tower foundations while the existing transmission line remained live,” says Franci Milhar, Project Manager at ENS Slovenia.

The new transmission line has enhanced the safety and stability of the power grid and enabled greater integration of renewable energy sources.



TAMO GDJE SUNCE POSTAJE SNAGA

WHERE SUNLIGHT BECOMES POWER

PAG, SA ČAROBNIM KAMENIM PEJZAŽIMA, OKRUŽENIM NEBESKOPLAVIM MOREM, JEDNO JE OD NAJSUNČANIJIH OSTRVA NA JADRANU S VIŠE OD 2.500 SUNČANIH SATI GODIŠNJE. *Obiljem solarne energije raspolaže i šarmantna opština Klis, koja se ponosi Kliškom tvrđavom, živim svjedokom turbulentne istorije njenog područja.*

PAG, WITH ITS MAGICAL STONE LANDSCAPES SURROUNDED BY SKY-BLUE SEA, IS ONE OF THE SUNNIEST ISLANDS IN THE ADRIATIC, ENJOYING MORE THAN 2,500 HOURS OF SUNSHINE EACH YEAR. *The same abundance of light reaches the charming municipality of Klis, proud of its Klis Fortress, a living witness to the turbulent history of the region.*

SR Nadaleko prepoznatljivo ostrvo, čiji je istoimeni grad već krajem 19. vijeka imao jedan od prvih sunčanih satova u Evropi, te opštinu, čija je tvrđava svjetski poznato turističko odredište, spaja i iskorak ka održivoj budućnosti.

Naime, ove godine su se i na Pagu, i u Klisu, „ugnijezdile“ po jedna solarna elektrana, a na oba projekta je Elnos Grupa još jednom pokazala sposobnost da odgovori zahtjevnim i složenim zadacima koji su joj povjereni.



SE Novalja (20,9 MWp) SPP Novalja (20,9 MWp)

SOLARNA ELEKTRANA NA 25 HEKTARA

Na zadivljujućih 25 hektara „nikla“ je solarna elektrana Novalja, na istoimenoj lokaciji na ostrvu Pag, u Ličko-senjskoj županiji, dok se solarna elektrana Izlazak 1 prostire na 9,9 hektara, na lokaciji Veliki Bročanac, u opštini Klis, u Splitsko-dalmatinskoj županiji.

Naša dinamična i uzbudljiva priča o ova dva velika projekta počinje u novembru 2024. godine, kada smo započeli radove na solarnoj

elektrani Izlazak 1, gdje je instalirano 17.240 panela sposobnih da proizvedu 10,52 MWp čiste energije.

ŠIROK SPEKTAR ZADATAKA

Na oba projekta – SE Izlazak 1 i SE Novalja – Elnos Grupa radove je izvodila po sistemu „ključ u ruke“, preuzimajući kompletan tehnički obim, od bušenja i stabilizacije temelja za potkonstrukcije, montaže nosivih stubova i solarnih

panela, do povezivanja srednjonaponskih (SN), niskonaponskih (NN) i DC kablova.

U okviru oba solara izvršeni su i montaža trafostanica, ispitivanje na AC i DC strani, podešavanje, zaštita i provjera funkcionalnosti postrojenja.

Poseban segment radova na obje solarne elektrane činila je montaža trafostanica: na SE Izlazak 1 ugrađene su dvije trafostanice snage 6,6 MVA (33/0,8 kV) i jedna 3,3 MVA (33/0,8 kV), dok su na SE Novalja montirane dvije trafostanice

od 6,6 MVA (20/0,8 kV) i jedna od 3,3 MVA (20/0,8 kV). Ove trafostanice osiguravaju stabilan prenos proizvedene električne energije u mrežu.

DVIJE BORBE, JEDAN CILJ

Iako tehnički srodni, projekti Izlazak 1 i Novalja nosili su vrlo različite izazove. Na SE Izlazak 1 tim je radio na izrazito nepristupačnom kraškom terenu, što je zahtijevalo detaljne statičke procjene i posebno prilagođeno bušenje svake lokacije. „Najveći broj naših ljudi bio je prisutan kada je počelo montiranje panela. Tada su i dalje rađeni bušenje i montaža konstrukcije, tako da su u tom periodu sve faze projekta bile aktivne“, prisjeća se Nikodije Josipović, direktor ENS Hrvatske.

Neophodna je bila i perfektna sinhronizacija radova više od 30 ljudi na terenu, uz preciznu organizaciju rada u različitim fazama projekta.

Posebnu pažnju posvetili smo usklađivanju nagiba solarnih panela s projektnim parametrima, kako bi se osigurala maksimalna efikasnost tokom cijele godine. Jednako pažljivo pristupili smo postavljanju i integraciji trafostanica, čime je obezbijeden pouzdan prenos proizvedene energije u mrežu.

Nasuprot tome, projekat SE Novalja, gotovo duplo većeg kapaciteta, donio je složenost u logistici i montaži – potkonstrukcije dužine i do 30 metara morala je biti precizno nivelisana

na terenu punom pukotina i neravnina. „Teren je bio veoma zahtjevan, što je otežavalo bušenje i kretanje. Potkonstrukcije su bile predugačke i na nekim mjestima bilo je vrlo teško ostati u tolerancijama koje je zadao dobavljač“, dodaje Josipović. Uz to, česte intervencije bile su neizbježne: „Dolazilo je do kvarova na bušilicama zbog težeg terena, te smo morali dodatno angažovati dizalice, utovarivače i bagere, kako bismo projekat efikasno i kvalitetno završili.“

Razlika nije bila samo u veličini, već i u dinamici – dok je SE Izlazak 1 bila inženjerski izazov, SE Novalja je postala test izdržljivosti, organizacije i reakcije u realnom vremenu.

Istaknimo i to da je SE Izlazak 1 realizovana kao investicija kompanije Encro, dok je SE Novalja razvijena u okviru investicije RP Global Austria.

OGROMAN POTENCIJAL

Izgradnja obje solarke spada među najvažnije solarne projekte u regiji koji postavljaju standarde za dalju implementaciju obnovljivih izvora energije u Dalmaciji.

Ovakvi projekti, pored toga što doprinose energetske tranziciji, obezbjeđuju i dugoročnu stabilnost elektroenergetskog Sistema Hrvatske.

Analitičari ocjenjuju da Hrvatska ima potencijal da instalira do sedam GW solarne energije do 2030. godine, čime bi ova zemlja postala lider u oblasti obnovljivih izvora energije u regiji.

MALA SOLARNA REVOLUCIJA U BIH

Da li ste znali da se u BiH tiho odvija solar na revolucija? Male solarne elektrane za komercijalnu i industrijsku upotrebu sve više postaju ključno rješenje za postizanje energetske nezavisnosti i smanjenje troškova. Naši timovi su u 2025. godini gradili više od 30 malih solarnih postrojenja, koja će u budućnosti isporučivati više od 10 MWp čiste energije.

Elnos Grupa s ponosom predvodi ovaj pokret, donoseći inovativna rješenja koja smanjuju emisije CO₂ i osnažuju održivu budućnost za generacije koje dolaze.

Brojke | SE Novalja

Figures | SPP Novalja



solarnih panela
solar panels



hektara
hectares



instalirana snaga
installed capacity

Brojke | SE Izlazak 1

Figures | SPP Izlazak 1



solarnih panela
solar panels



hektara
hectares



instalirana snaga
installed capacity

Montirane trafostanice osiguravaju stabilan prenos energije u mrežu | Installed substations ensure stable power transmission to the grid



EN The island of Pag and its namesake town, known since the late nineteenth century for one of Europe's earliest sundials, and the municipality whose fortress draws travellers from around the world, are now connected by a shared step toward a sustainable future.

This year, both Pag and Klis became home to new solar power plants, where Elnos Group once again proved its ability to meet the demanding and complex challenges entrusted to it.

SOLAR PLANT ON 25 HECTARES

Solar power plant Novalja has emerged across 25 hectares in the town of Novalja on the island of Pag, in Lika-Senj County. Another, named Izlazak 1, spreads over 9.9 hectares at Veliki Bročanac in the municipality of Klis, Split-Dalmatia County.

Our dynamic and exciting story about these two large projects began in November 2024, when we started work on the solar power plant Izlazak 1, where 17,240 panels were installed, capable of producing 10.52 MWp of clean energy.

COMPREHENSIVE SCOPE OF WORKS

On both these projects, SPP Izlazak 1 and SPP Novalja, Elnos Group worked on a turnkey basis, handling every stage of the technical process, from drilling and stabilizing the foundations for the supporting structures, to assembling the mounting frames and installing the solar panels, and connecting medium-voltage (MV), low-voltage (LV), and DC cables.

Moreover, works on both solar plants included installation of substations, testing of both AC and DC systems, adjustment, protection, and functional verification of the entire plant.

Another key segment of both projects was the installation of substations. At Izlazak 1, two units of 6.6 MVA (33/0.8 kV) and one of 3.3 MVA (33/0.8 kV) were installed, while Novalja included two substations of 6.6 MVA (20/0.8 kV) and one of 3.3 MVA (20/0.8 kV). These substations secure a stable transfer of the generated energy to the electrical power network.

TWO CHALLENGES, ONE GOAL

Although technically related, projects Izlazak 1 and Novalja brought very different kinds of challenges. At Izlazak 1, the team worked on steep and inaccessible karst ground that demanded detailed structural assessments and individually adjusted drilling for every foundation. "The largest number of our workers was on site when panel installation began. Drilling and structural assembly were still underway, so all stages of the project were active at once," Nikodije Josipović, Director of ENS Croatia.



Ljudi iza rezultata na SE Izlazak 1 (10,52 MWp) People behind the results at SPP Izlazak 1 (10.52 MWp)

Flawless coordination among more than 30 workers in the site was essential, together with precise timing between the overlapping phases.

Particular attention was devoted to setting the tilt of the solar panels in line with design parameters to ensure peak efficiency throughout the year. The installation and integration of substations were handled with the same precision, securing a steady transfer of generated power into the grid.

The Novalja project, nearly twice as large in capacity, presented a different test—one of logistics and endurance. Racking systems up to 30 meters long had to be precisely leveled on terrain fractured by cracks and uneven rock. "The terrain was extremely demanding, making both drilling and movement difficult. The racking systems were extremely long, and in some places it was very hard to stay within the tolerances set by the supplier," adds Josipović. Mechanical interventions were frequent. "Drilling machines broke down due to stiffness of the terrain, and we had to bring in additional cranes, loaders, and excavators to complete the project efficiently and with consistent quality."

The difference between the two sites lay not only in scale but in rhythm. While Izlazak 1 was an engineering challenge, Novalja became a test of organization and stamina in real time.

Another difference worth noting is that Izlazak 1 was implemented as an investment of the company Encro, while Novalja was developed within the investment framework of RP Global Austria.

VAST POTENTIAL

The construction of both solar power plants stands among the most significant solar projects in the region, setting new standards for the wider use of renewable energy in Dalmatia. Besides supporting the ongoing energy transition, projects like these also strengthen the long-term stability of Croatia's power system.

"Analysts estimate that Croatia could install up to seven GW of solar power by 2030, which would position the country as a regional leader in renewable energy.

SMALL SOLAR REVOLUTION IN BOSNIA AND HERZEGOVINA

Were you aware that a quiet solar revolution is under way in Bosnia and Herzegovina?

Small solar plants for commercial and industrial use are increasingly becoming a key solution for achieving energy independence and reducing costs.

In 2025 alone, our teams built more than 30 small solar facilities that will deliver over 10 MWp of clean energy in the years to come.

Elnos Group is proud to lead this movement, bringing forward innovative solutions that reduce CO₂ emissions and strengthen a sustainable future for the generations ahead.

ENERGETSKA TRANSFORMACIJA ČEŠKE

CZECHIA'S ENERGY
TRANSFORMATION

„Ključ u ruke“ za tri dvosistemska 400 kV dalekovoda
Turnkey delivery for three double circuit 400 kV transmission lines

DOBRO DOŠLI U ZEMLJU PIVA, HOKEJA I KRISTALA.

Zemlju u kojoj je poželjno da se pri svakom predahu osvežite kriglom hladnog pjenušavog napitka od hmelja. Izraz za zdravicu im je sličan našem, dovoljno je da kažete: „Na zdraví!“ Pogađate, doveli smo vas u Češku, srednjoevropsku državu koja je gotovo potpuno okružena planinama, između kojih i danas postoji više od 2.000 sačuvanih dvoraca, koji bez daha ostavljaju ljubitelje istorije i arhitekture. Jedno je sigurno: Česi se mogu ponositi plodonom prošlošću, ali i sadašnjošću, budući da imaju ogromne projektne mogućnosti. I neumorno ih realizuju. I mi smo ove godine u ovoj zemlji imali važan razlog da kažemo „Na zdraví“, čak tri puta – jer istovremeno izvodimo tri velika projekta, a evo o čemu je riječ...

WELCOME TO THE LAND OF BEER, HOCKEY AND CRYSTAL.

A country where every pause invites you to refresh yourself with a mug of cold frothy brew brewed from hops. Their toast is much like ours; all you need to say is “Na zdraví”! You’ve guessed it; we’ve brought you to the Czech Republic, a Central European country almost entirely surrounded by mountains and more than 2,000 preserved castles among them still leaving admirers of history and architecture breathless. One thing is certain: Czechs can take pride in a fruitful past as well as the present, with immense project potential that they tirelessly bring to life. And this year, we too had three good reasons to say “Na zdraví”, on the account of our parallel engagement on three major projects in the country.

SR TRI VELIKA PROJEKTA

Elnos Grupa danas, zahvaljujući maksimalnoj posvećenosti, znanju i energiji naših timova, istovremeno radi na tri velika projekta, koji će biti žile kucavice energetske mreže ne samo u ovoj zemlji, nego i regionalno.

Riječ je o isto toliko dalekovoda, od čega smo jedan počeli graditi 2023, dok smo čak dva počeli realizovati u 2025. godini.

Izgradnja dalekovoda 400 kV V413 je podrazumijevala demontažu postojećih i podizanje novih stubova na trasi dužine 37,69 kilometara. Radovi su započeli u februaru 2023. godine. Projekat je realizovan u konzorcijumu sa firmom RRR i ima ključnu ulogu u povećanju sigurnosti napajanja glavnog grada Praga. Oko polovine trase čini dvosistemski dalekovod V412/V413, dok je ostatak jednosistemski dalekovod V413.

U martu 2025. godine počela je izgradnja 400 kV dalekovoda V432/429, koja podrazumijeva izgradnju paralelnog voda na trasi dužine 13,8 kilometara. Projekat se realizuje u konzorcijumu sa firmom Transenergy, a radovi će trajati do oktobra 2026. godine. Realizacijom ovog projekta značajno će se ojačati stabilnost i pouzdanost elektromreže u plzenskom području i okolini.

Radovi na 400 kV dalekovodu V451/448 – izgradnja paralelnog voda uz izvođenje građevinskih i montažnih radova – ukupne dužine 51,95 kilometara, započeli su u septembru 2025. godine, a planirano je da traju do oktobra 2027. godine. Na ovom projektu Elnos učestvuje kao konzorcion partner zajedno sa firmama Elektrotrans, Spie Elektrovod i Elcon, pri čemu Elnos realizuje oko jedne četvrtine ukupnog ugovora. Projekat u sjevernoj Češkoj ima ključnu ulogu u unapređenju sigurnosti i stabilnosti napajanja grada Libereca i okolnog područja.

„KLJUČ U RUKE“

Dakle, u 2025. godini paralelno smo radili na tri važna dalekovoda u Češkoj, a investitor sva tri projekta je češki operater prenosnog sistema ČEPS, koji je povjerenje za realizaciju ovih poduhvata ukazao našim profesionalcima.

Sva tri projekta podrazumijevaju izgradnju dvosistemskih 400 kV dalekovoda po principu „ključ u ruke“ i imaju za cilj povećanje sigurnosti snabdijevanja električnom energijom širom Češke, ali i stratešku integraciju u evropsku energetska mrežu.

Činjenica da su nam ovi projekti povjereni po sistemu „ključ u ruke“ podrazumijeva da smo odgovorni za kompletnu organizaciju radova i nabavku materijala, što predstavlja dokaz našeg stručnog kapaciteta da samostalno realizujemo složene poslove.

TEHNIČKA TRANSFORMACIJA

Prepoznali smo značaj svoje uloge i na terenu smo do sada imali više od 80 članova Elnos tima. Njihovi poslovi podrazumijevaju demontažu postojećih i izgradnju dvosistemskih 400 kV dalekovoda. U najkraćem rečeno – izvodimo tehničku transformaciju.

„U praksi to znači demontažu postojećih provodnika i OPGW-a, rušenje stubova i temelja, zatim izgradnju novih temelja, montažu i podizanje novih stubnih konstrukcija, elektromontažu provodnika i OPGW-a. Naši timovi izvođeci ove poslove demonstriraju svoje stručno znanje i ekspeditivnost“, ističe Nedeljko Vujičić, projekt menadžer Elnos Grupe.

RAD DEFINISAN STRIKTNIM ROKOVIMA

Poseban izazov za nas je i to što prvi put izvan regiona realizujemo isporuku kompletnog materijala i opreme za izgradnju dalekovoda, a sve to u veoma kratkim definisanim rokovima. To, međutim, nije jedini izazov.

„Zajedničko za sva tri projekta je to da su vremenski rokovi izvođenja radova strogo definisani isključenjima“, naglašava Vujičić.

Ovakvi projekti zahtijevaju precizno planiranje, visok nivo koordinacije i bespriekorno tehničko izvođenje, jer se trase na kojima radimo na velikom broju lokacija ukrštaju sa drugim vodovima, željeznicama, putevima i rijekama.

PAŽLJIV SVAKI KORAK

Pritom, svaki minut nam je bitan, jer se povremeno radi i u ekspeditivnim periodima kratkih isključenja, koja se striktno definišu sa ČEZ-om. Kako u ovoj zemlji u srcu Evrope brižljivo čuvaju svoje prirodne ljepote i kulturno-istorijsko nasljeđe, bitno je da svaki korak u realizaciji naših projekata bude pažljiv.

EN THREE MAJOR PROJECTS

Thanks to the dedication, knowledge, and energy of our teams, Elnos Group is simultaneously working on three major projects that are becoming the lifelines of the Czech Republic's electrical power network as well as the wider region.

These efforts involve the construction of three high-voltage transmission lines – one launched in 2023, and two that began in 2025.

The construction of the 400 kV V413 transmission line involved dismantling existing towers and erecting new ones along a 37.69-kilometer route. The works began in February 2023. The project was implemented in a consortium with the company RRR and played a key role in increasing the security of power supply to the capital city of Prague. About half of the route consisted of the double-circuit line V412/V413, while the remaining section was the single-circuit line V413.

In March 2025, construction began on the 400 kV V432/429 transmission line, which includes the building of a parallel circuit along a 13.8-kilometer route. The project is implemented in a consortium with Transenergy, and the works are scheduled to last until October 2026. Upon completion, the project will significantly strengthen the stability and reliability of the power grid in the Plzeň area and its surroundings.

Works on the 400 kV V451/448 transmission line – construction of a parallel circuit with civil and assembly works – covering a total length of 51.95 kilometers, began in September 2025 and are planned to continue until October 2027. On this project, Elnos participates as a consortium partner together with Elektrotrans, Spie Elektrovod, and Elcon, with Elnos responsible for approximately one-quarter of the total contract.

Brojke

Figures



80
članova Elnos tima na terenu istovremeno
Elnos team members deployed on site at the same time



2023.
počela izgradnja prvog dalekovoda
start of construction of the first transmission line



3
godine Elnos Grupa posluje u Češkoj
years of Elnos Group operations in the Czech Republic

The project, located in northern Czechia, plays a key role in improving the security and stability of electricity supply for the city of Liberec and the surrounding area.

TURNKEY RESPONSIBILITY

Thus, in 2025, we found ourselves building three important transmission lines in the Czech Republic in parallel, all commissioned by the national transmission system operator ČEPS, which entrusted the execution of these projects to our professionals.

Each of them involves construction of double-circuit 400 kV transmission line on a turnkey basis, with the aim of strengthening the security of power supply across Czechia and ensuring strategic integration into the European energy network.

The fact that the projects were awarded to us on a turnkey basis also makes us responsible for the complete organization of works and procurement of materials, standing as evidence of our expertise and capacity to independently deliver complex assignments.

TECHNICAL TRANSFORMATION

We recognized the weight of our role, and more than 80 members of the Elnos team have already been active on site. Their tasks involve dismantling existing infrastructure and constructing new 400 kV double-circuit lines. Put simply, we are carrying out a technical transformation.

“In practice, this means dismantling existing conductors and OPGW, demolishing towers and foundations, building new foundations, assembling and erecting new tower structures, and installing conductors and OPGW. By performing these works, our teams demonstrate both expertise and efficiency,” explains Nedeljko Vujičić, a Project Manager at Elnos Group.

STRICT DEADLINES

A particular challenge is that, for the first time outside the region, we are supplying the complete set of materials and equipment for transmission line construction, all under very short deadlines. That, however, is not the only challenge.

“What all three projects share is that the timelines for execution are strictly defined by scheduled outages,” notes Vujičić.

Such projects demand precise planning, a high level of coordination and flawless technical execution, since many sections of the routes we are working on intersect with other lines, railways, roads and rivers.

EVERY STEP WITH CARE

Adding to the challenge, the schedule is timed so tightly that every minute counts, as some of the work must be carried out during short outages strictly agreed with ČEZ. Moreover, because this country at the heart of Europe is so careful about preserving its natural beauty and cultural heritage, every step in the realization of our projects must be taken with the utmost care.

Strogo definisana isključenja i kratki radni intervali Strictly defined outages and short work windows



TREĆA SEKCIJA TRANSBALKANSKOG KORIDORA KROZ SRBIJU

THIRD SECTION OF THE TRANS-BALKAN CORRIDOR THROUGH SERBIA

RADOVI NA IZGRADNJI DVOSISTEMSKOG 400 kV DALEKOVODA IZMEĐU TRAFOSTANICA BAJINA BAŠTA I OBRENOVAC ZVANIČNO SU POČELI.

Na ovoj trasi, dugoj 109 kilometara, gradi se energetska kičma koja će činiti treću sekciju Transbalkanskog energetskog koridora – projekta od strateškog značaja za prenosnu mrežu Srbije i cijele regije.

CONSTRUCTION OF THE DOUBLE CIRCUIT 400 kV TRANSMISSION LINE BETWEEN SUBSTATIONS BAJINA BAŠTA AND OBRENOVAC HAS OFFICIALLY BEGUN. Along the 109 kilometer route, a new energy backbone is taking shape, forming the third section of the Trans-Balkan Electricity Corridor – a project of strategic importance for Serbia's transmission network and the wider region.



Duž trase će biti podignuto 309 stubova 309 towers along the route

SR Naše ekipe zakoračile su u ovaj poduhvat u junu 2025. godine. Tokom realizacije projekta, naš tim zadužen je za sklapanje, montažu i elektromontažu oko 25 odsto stubova duž trase, kao i za demontažu postojećeg dalekovoda na mjestima ukrštanja sa novom linijom.

Na cijeloj trasi biće podignuto ukupno 309 stubova. Do februara 2028. godine oni će se uzdići iznad brdovitih predjela u okolini Beograda, a zatim nastaviti preko Kolubarskog i Zlatiborskog okruga – svaki kao karika u lancu buduće prenosne mreže.

„Projekat se realizuje na zahtjevnom brdsko-planinskom terenu, što traži dodatnu pažnju i prilagođavanje svakog koraka rada. Posebna briga posvećena je očuvanju prirode kako bi se uticaj na zemljište i okolinu sveo na minimum. Istovremeno, zbog prolaska kroz područja visokog biodiverziteta neophodno je svesti sječju šumskog koridora na minimum i odmah po završetku radova vratiti zemljište i vegetaciju u prvobitno stanje“, objašnjava Mirko Tomasović, projekt menadžer Elnos Srbije.

EN Our teams embarked on this undertaking in June 2025. Our scope covers the assembly, erection, and electrical installation of about 25 percent of the towers along the route, as well as dismantling sections of the existing line where it crosses the new one.

A total of 309 towers will be erected over the length of the alignment. By February 2028, these will rise above the hills surrounding Belgrade before extending across the Kolubara and Zlatibor districts – each tower a link in the future transmission network.

The project is being carried out in demanding hilly and mountainous terrain, which calls for extra care and careful adaptation at every step of the work. Special attention is given to protecting the natural environment, so the impact on the land and surrounding area is kept to a minimum. At the same time, because the route passes through areas of high biodiversity value, forest corridor clearing is kept to a minimum, and once the works are completed, the land and vegetation are restored to their original state,” explains Mirko Tomasović, Project Manager at Elnos Serbia.

PROJEKAT ENERGETSKE BUDUĆNOSTI REGIJE

Izgradnja 2 x 400 kV dalekovoda TS Bajina Bašta-TS Obrenovac dio je veće inicijative iz Agende povezivanja – Transbalkanskog koridora, koji će 400 kV dalekovodnom linijom povezati Rumuniju, Srbiju, Bosnu i Hercegovinu i Crnu Goru.

PROJECT CENTRAL TO THE REGION'S ENERGY FUTURE

The construction of the 2 x 400 kV transmission line between substations Bajina Bašta and Obrenovac is a part of a broader initiative under the Connectivity Agenda – the Trans-Balkan Corridor, which will connect Romania, Serbia, Bosnia and Herzegovina, and Montenegro via a 400 kV transmission line.

Rekonstrukcija 400 kV dalekovoda Breared–Söderåsen u Švedskoj
Reconstruction of the 400 kV Breared–Söderåsen transmission line in Sweden

ODLIČNO PRVO POLUVRIJEME

EXCELLENT FIRST HALF

Na terenu izgradnje 400 kV DV Breared–Söderåsen. At the 400 kV Breared–Söderåsen TL construction site

**MORSKA SO. JAK VJETAR.
KOROZIJA. ZUB VREMENA.**

To su, u proteklih sedam decenija, bila četiri „udružena neprijatelja“ 400 kV dalekovoda Breared–Söderåsen u Švedskoj. Zato je došlo vrijeme da se on mijenja novim. Na trasi, istovremeno i do 80 montera, smjena za smjenom, sprema ovaj dio mreže za nove decenije.

**SEA SALT. STRONG WINDS. CORROSION.
THE WEAR OF TIME.**

For seven decades, these four “allied enemies” have tested the endurance of Sweden’s 400 kV Breared–Söderåsen transmission line. Now its renewal has begun. Along the route, as many as 80 fitters worked in shifts, preparing this vital link of the national electrical power network for the decades ahead.

SR KLJUČNI RADOVI

Elnos Grupa je na ovom projektu uspješno i kvalitetno, uprkos brojnim izazovima, od kratkih rokova do visokorizičnih zadataka, uspješno stigla „do pola“ rekonstrukcije ovog 88 kilometara dugog dalekovoda.

Investitor, švedski operater prenosnog sistema Svenska Kraftnät, nas je, u okviru konzorcijuma sa kompanijom Linjemontage i Grästorps AB, angažovao na ključnim radovima: nabavci ovsjesne opreme i provodnika, demontaži starih stubova, instalaciji novih i elektromontažnim radovima.

Prije nego što uplovimo u sve uzbudljive etape ovog našeg puta, vratimo se nakratko na januar 2025. godine. Tada je na živopisnim predjelima jugozapada zemlje, čije je čak 70 odsto teritorije prekriveno šumskim bogatstvom, počela rekonstrukcija ovog dalekovoda, koji prolazi kroz pokrajine Halland i Skåne, regije koje se ponose velikom koncentracijom stanovništva, razvijenom industrijom i samim tim i rastućom potrebom za električnom energijom.

Već u priprema fazi projekta bilo je jasno – čeka nas obiman i zahtjevan posao. Tim je uveo ritam i plan. Odgovornosti su definisane, cilj precizan.

STABILNO NAPAJSANJE

Prvo, ovaj dalekovod zaslužen je za stabilno napajanje za domaćinstva, gradove i industrijske zone u području s posebno visokom potrošnjom. Drugo, bilo nam je poznato i da će modernizovana linija omogućiti integraciju velikog broja vjetro-parkova i obnovljivih izvora energije u mrežu. Treće, uvjerali smo se da su dotadašnji vodovi bili ne samo stari, nego i neprestano izloženi uticaju morske klime, što znači da njihova zamjena garantuje dugoročnu sigurnost i stabilnost snabdijevanja, čime se smanjuje rizik od kvarova i neželjenih ispada sistema. I četvrto – ogroman je značaj ovog projekta za privredu, jer je stabilna i sigurna električna mreža preduslov za razvoj industrije, uslužnog sektora i novih investicija. Ukratko – ovaj projekat je oslonac energetske tranzicije cijelog regiona.

STRATEŠKI PROJEKAT

Dakle, kada se sve sabere, ovaj dalekovod nije važan samo kao tehnička infrastruktura, već i kao strateški projekat za razvoj cijelog regiona. Svi ti benefiti našim ekipama bili su pokretačka snaga pri izgradnji nove linije na istoj trasi gdje je i postojeća, te potom i uklanjanju stare linije nakon uspostavljanja operativnosti nove. Posla je bilo napretek: na trasi dugoj oko 88 km, na područjima opština Halmstad, Laholm, Ängelholm i Bjuv, podigli smo 79 novih stubova, prosječne visine oko 40 metara, te uklonili 81 stari stub, što je oko 45 odsto nama povjerenog posla. Novi stubovi, tipova A s ankerima, B i dvosistemske (jelke), oblikovali su i novi energetske pejzaž ovog područja. Kako je izgledao naš rad na terenu? Izazova je bilo mnogo. U zoni paralelnog dalekovoda mogućnost indukcije diktira pravila, zato su procedure bile izuzetno striktno, a provjere redovne. Bezbjednost – kriterijum iznad svih.

OBIMAN POSAO, KRATAK ROK

Pritom, posla je bilo mnogo, a rokovi su kratki, što znači da su nam trebali precizna koordinacija i planiranje. I to nije sve – za izvođenje ovogodišnjih radova na rekonstrukciji imali smo rok za isključenje od svega jednog perioda od devet sedmica, što je značilo svojevrstnu trku s vremenom, u kojoj je bitan svaki trenutak. Kako smo to uspjeli? Recept je perfektno osmišljeno iskorištavanje svakog sekunda – svaki čovjek, svaka mašina i svaka operacija morali su biti usklađeni. „U ključnim fazama, za vrijeme isključenja, angažovano je oko 80 montera. Korišteno je pet mobilnih kranova, pet do šest kamiona i veliki broj različitih mašina i specijalizovane opreme. Pritom, teren je kombinacija ravnica i

stjenovitih predjela i iziskivao je bušenja i upotrebu eksploziva“, pojašnjava Dejan Indić, projekt menadžer Elnos Grupe.

OPREZ I ODGOVORNOST

Pored toga, zahtjevni terenski i klimatski uslovi iziskivali su idealnu kombinaciju efikasnosti i opreza. Oprezni smo morali biti i u segmentu zaštite životne sredine, jer trasa dijelom prolazi kroz osjetljiva područja. Stoga smo se, od prvog do zadnjeg dana, brinuli za strogo poštovanje švedskih ekoloških propisa te primjenu zaštitnih mjera prilikom radova.

Bitno je napomenuti još jednu zanimljivost: osim kontinuiranog nadzora uticaja na zemljište, vegetaciju i lokalne zajednice, radovi su obuhvatali i obnavljanje terena. Švedski zakoni, naime, strogo nalažu zaštitu životne sredine, pa se, nakon svake faze radova, teren vraća u prvobitno stanje, putevi se obnavljaju, a biljni i životinjski svijet pažljivo štite.

Novi stubovi, koji su se izdigli iznad šuma i ravnica jugozapadne Švedske, ne simbolizuju samo čelik i provodnike. Oni su, prije svega, pečat zajedničkog truda, profesionalizma i vizije – da se budućnost gradi na pouzdanim temeljima i da energija stigne tamo gdje je najpotrebnija.

EN KEY WORKS

Despite short deadlines and demanding conditions, Elnos Group has successfully reached the halfway mark in reconstructing this 88-kilometer transmission line.

The investor, Svenska Kraftnät, Sweden's transmission system operator, entrusted us, as part of a consortium with Linjemontage Grästorpe AB, with the project's most critical stages: procuring suspension equipment and conductors, dismantling old towers, installing new ones, and completing all electrical assembly works. Before we set out into the most dynamic stages of this journey, let us return briefly to January 2025. That was when reconstruction began in the vibrant landscapes of Sweden's southwest, where nearly 70 percent of the land is draped in forest. The line passes through the provinces of Halland and Skåne, regions proud of their dense population, developed industry, and, with that, their growing demand for electricity. Even in the preparation phase it was clear – this would be a large and demanding undertaking. The rhythm was set early. Every task was defined and the goal was clear.

STABLE SUPPLY

First, this transmission line ensures a stable power supply for households, cities, and industrial zones in one of Sweden's most energy-in-



Radovi u toku Work in progress

tensive areas. Second, we knew that its modernization would allow the integration of numerous wind parks and renewable sources into the grid. Third, we saw that the old transmission lines were not only outdated but constantly exposed to the effects of the marine climate, meaning that their replacement would guarantee long-term reliability and reduce the risk of failures or unexpected outages. And fourth, the project carries enormous importance for the economy itself since a stable and secure electrical power network is the foundation for industrial growth, the service sector, and new investment. In short, this project stands as a pillar of the region's energy transition.

STRATEGIC UNDERTAKING

When all factors are considered, this transmission line stands not only as technical infrastructure but as a strategic project for the region's development. Those benefits inspired our teams as they built the new line along the existing route, then dismantled the old one once the new became operational.

Work was plentiful: over an 88-kilometer stretch through the municipalities of Halmstad, Laholm, Ängelholm, and Bjuv, we erected 79 new towers, each about 40 meters high, and dismantled 81 old ones, which is roughly 45 percent of the scope entrusted to us. The new A-type



Rekonstruiše se 88 kilometra datekovoda 88 kilometers of transmission line are being reconstructed

anchored, B-type, and double-circuit (Christmas-tree configuration) towers reshaped the energy landscape of this area. What did our work look like on the site? The challenges were many. In the corridor of a parallel line, the risk of induction set strict rules, making procedures meticulous and inspections routine. Safety stood above all else, the standard that guided our every move.

EXTENSIVE WORK, TIGHT DEADLINES

The workload was immense, and the deadlines were short, demanding precise coordination and planning. And that was not all — for this year’s reconstruction phase, we had just one nine-week window for outage and reconstruction, a true race against time where every moment mattered.

And how did we manage?

The formula for success was simple: perfect use of every second. Every person, every machine, every operation had to be in sync.

“In the key stages, during the outage, about 80 fitters were engaged,” explains Dejan Indić, Project Manager at Elnos Group. “We operated with five mobile cranes, five to six trucks, and a wide range of machinery and specialized equipment. The terrain, a mix of flatland and rock, required drilling and the use of explosives.”

CAUTION AND RESPONSIBILITY

Beyond that, the demanding terrain and harsh weather required a perfect balance of efficiency and caution. We also had to remain alert in protecting the environment, as the route passes partly through sensitive areas. From the first to the last day, our teams ensured strict compliance with Sweden’s environmental regulations and applied all necessary protective measures during the works.

It is worth noting another important detail: in addition to continuous monitoring of soil, veg-

etation, and local communities, the project also involved restoring the land itself. Swedish law is clear on this — after each phase of construction, the terrain must be returned to its original state, roads must be repaired, and local flora and fauna carefully protected.

The new towers rising above the forests and plains of southern Sweden stand for more than steel and conductors. They are, above all, a testament to shared effort, professionalism, and vision — proof that the future is built on reliable foundations and that energy finds its way to where it is needed most.

Brojke

Figures



dužina trase
route length



novih stubova
za podizanje
new towers to
be erected



prosječna
visina stubova
average tower
height



montera u
ključnim etapama
fitters during
key phases

ZELENA KIČMA DANSKE

THE GREEN BACKBONE OF DENMARK

ZEMLJA VIKINGA I HILJADUGODIŠNJEG

KRALJEVSTVA PLANIRA DA

DO 2030. godine učtverostruči korištenje obnovljive energije, a za njen stabilniji prenos “pobrinuće se” dvosistemske 400 kV dalekovod koji se proteže od Holstebro prema njemačkoj granici, u zapadnom dijelu Danske, čija izgradnja je, pritom kičma daljoj ekspanziji energetske oslanjanja na moć vjetra i sunca.

THE LAND OF VIKINGS AND A THOUSAND YEAR OLD KINGDOM

PLANS TO QUADRUPLE ITS USE OF RENEWABLE ENERGY BY 2030. Stable transmission of the energy produced will be taken care of by the double circuit 400 kV transmission line, stretching from Holstebro toward the German border in the western part of Denmark. Its construction stands as the backbone of Denmark's growing reliance on the power of wind and the light of the sun.

SR Danska, koja je među evropskim liderima u primjeni obnovljivih izvora energije, realizuje ovaj, jedan od najvećih dalekovoda u regionu, koji povezuje elektroenergetske mreže Danske i Njemačke, omogućavajući stabilan prenos zelenih megavata iz vjetroparkova.

VJETROVITA OBALA

Izgradnja dalekovoda počela je u aprilu 2024. godine, na vjetrovitoj obali Sjevernog mora, tako da su izazovni vremenski uslovi, uz čestu kišu i snažne vjetrove, dodatno otežavali naše aktivnosti, zbog čega smo svoje planove morali prilagodavati datom trenutku.

Kolege sa terena su nam ispričale – promjene vremena bile su toliko nagle da se u roku od svega nekoliko sati mogu zamijeniti sunčani uslovi sa olujnim vjetrovima i jakom kišom, što je zahtijevalo izuzetnu fleksibilnost i snalažljivost.

Posao Elnos Grupe je impresivan – obuhvata montažu i podizanje 438, uglavnom Tor

stubova, što je podrazumijevalo angažovanje 60–70 montera u najdinamičnijim fazama projekta, potom saradnju sa danskim partnerima i lokalnom zajednicom, kao i obezbjeđenje stabilnosti mreže tokom radova kroz sinhronizaciju sa postojećim dalekovodima.

Riječ je o dalekovodu dugom 140 km, a raspon između stubova, visokih do 36 metara, te teških od 24 do čak 55 tona, iznosi u prosjeku 330 metara, s tim što su temelji izgrađeni od niskokarbonskog betona.

BOG GROMA

Ukoliko ste se zapitali šta su Tor stubovi – to je potpuno opravdano. Riječ je o stubovima koji su zbog jedinstvenog dizajna, ali i ogromne snage, nazvani po nordijskom bogu groma.

„Dizajnirani su tako da smanje vizuelni uticaj na okolinu i uklope se u danski pejzaž. Dakle, odabrani su ne samo zbog svoje snage i izdržljivosti, već i zbog estetskog doprinosa koji smanjuje

negativan ekološki uticaj. Riječ je o novom tipu stubova koji podsjećaju na Torov čekić – dovoljno su snažni da izdrže najekstremnije uslove, ali i dovoljno niski da se uklope u ravničarski krajolik Zapadne i Južne Jitlandije“, pojašnjava Đorđe Jonlija, projekt menadžer Elnos Grupe.

Ovi stubovi s razlogom nose ovako originalan naziv – zbog debelog pocinčanog sloja, očekuje se da će, bez potrebe za dodatnim tretmanima, trajati i do 80 godina. Ali to nije sve – dizajnirani su tako da budu otporni na jake vjetrove i visoku vlažnost vazduha.

Pritom do izražaja dolazi i njihova funkcionalnost – visoki su između 27 i 32 metra do gornjeg ruba poprečne ruke, čime se osigurava da poljoprivredna mehanizacija može nesmetano prolaziti ispod vodova.

Postavljanje ovih stubova bilo je izazovan zadatak za naše kolege: zahtijevalo je precizno planiranje i logistiku. Svaki je, prije podizanja, sastavljen na zemlji od 71 pojedinačnog dijela. S obzirom na





Tor stubovi u službi zelenih megavata Thor towers for green megawatts

Brojke

Figures



dužina dalekovoda
total line length



iznosi težina stubova
tower weight



prosječan raspon
između stubova
average span
between towers



pojedinačni dio
po stubu
separate components
per tower

GOD OF THUNDER

If you have wondered what the Thor towers are, your curiosity is more than justified. The towers were named after the Norse god of thunder for their unique design and immense strength.

“They were designed to reduce visual impact and blend into the Danish landscape,” explains Đorđe Jonlija, Project Manager at Elnos Group. “This goes to say towers were chosen not only for their strength and durability but for their aesthetic contribution which at the same time minimizes negative impact to the environment. These are new generation towers shaped to harmonize with the flat horizons of Western and Southern Jutland. They resemble Thor’s hammer: strong enough to withstand extreme conditions, yet discreet enough to belong to the land.”

The name is well deserved. Their thick galvanized coating ensures a lifespan of up to 80 years without any additional treatment, while the structure itself resists high winds and humidity.

Functionality, too, plays its part, as the towers rise between 27 and 32 meters to the top of the cross-arm, allowing agricultural machinery to pass freely beneath the lines.

Installing these towers required careful logistics and engineering discipline. Each one was first assembled on the ground from 71 separate components before being erected. With heights approaching 40 meters and weights reaching 55 tons, the operation demanded use of specialized installation equipment.

visinu do 40 metara i težinu do 55 tona, korištena je specijalizovana oprema za montažu.

EN Positioned within the broader West Coast Line initiative, this project reinforces Denmark’s strategic coastal corridor for green energy transmission along the North Sea.

As one of Europe’s leaders in renewable energy, Denmark is actively advancing one of the largest transmission undertakings in the region, linking its power network with Germany and securing a stable flow of green megawatts from coastal wind farms.

WINDY COAST

Construction of the transmission line began in April 2024 on the windy coast of the North Sea, where frequent rain and strong gusts often made work difficult. Every stage of our activities had to follow the rhythm of the weather.

Colleagues in the site recall how quickly the sky could change — within a few hours calm turned to storm, bringing heavy rain and wind. The conditions demanded rare flexibility and quick thinking.

For Elnos Group, the work carried out was remarkable in scale. It included the assembly and erection of 438 towers, most of them of the Thor type, with between 60 and 70 fitters engaged during the most intense phases. The project also required close cooperation with Danish partners and the local community, as well as maintaining network stability by synchronizing with existing lines.

The transmission line constructed stretches for 140 kilometers, with an average span of 330 meters between towers. Each one, up to 36 meters high and weighing between 24 and 55 tons, stands on foundations made of low carbon concrete.

NA „VRATIMA ISLANDA“

AT THE GATEWAY TO ICELAND

KAŽU DA OVO PODRUČJE ZOVU „VRATA ISLANDA“.

Zašto? Zato što upravo ovdje, na poluostrvu Suðurnes, na aerodrom Keflavík, slijeće većina aviona koji dovoze milione turista u zemlju vatre i leda.

Na ovom poluostrvu beskrajnih polja lave, uz oštre vjetrove i mirise geotermalnih izvora koji dolaze sa svih strana, uspostavili smo savršen balans ugodnog i korisnog. Dok nam je priroda nesebično predstavljala njene čari, naš tim je pokazivao svoje umijeće na još jednom velikom projektu – izgradnji 220 kV dalekovoda Suðurnesjalína 2.

THE AREA IS OFTEN REFERRED TO AS THE “GATEWAY TO ICELAND.”

Why? Because it is here, on the Suðurnes Peninsula, that Keflavík Airport welcomes most of the planes bringing millions of visitors to the land of fire and ice.

Amid boundless lava fields, with sharp winds and the scents of geothermal springs rising from every direction, we reached a perfect balance of pleasure and purpose. While nature revealed her wonders with generosity, our team demonstrated its mastery on another major project – the construction of the 220 kV transmission line Suðurnesjalína 2.



Nova veza za poluostrvo Suðurnes New connection to the Suðurnes peninsula



Stubovi koji čuvaju pejzaž Towers preserving the landscape

SR Cilj ovog projekta u zemlji gdje već godinama unazad pretvaramo hrabre ideje u stvarnost jeste da se poboljša sigurnost snabdijevanja električnom energijom na poluostrvu Suðurnes (Reykjanes), jer je 132 kV dalekovodna linija Suðurnesjalína 1 bila jedina prenosna veza za to područje.

STUBOVI TEŠKI DO 20 TONA

Ova naša misija počela je krajem maja 2025. Elnosova ekipa je od prvog dana, uz ogroman entuzijazam, neumorno radila na trasi od Keflavíka do Vellira, ukupne dužine 29 kilometara.

Naš zadatak bili su montaža i podizanje stubova, kao i elektromontaža. Riječ je o ukupno 86 stubova, visine od 19 do 38 metara, a težine od sedam do čak 20 tona.

Nimalo jednostavan zadatak, pogotovo ako se uzme u obzir da trasa dalekovoda ide duž poluostrva Reykjanes, gdje vjetar ne prestaje. U pitanju je polje svježeg vulkanskog tla, a zanimljivo je i to da se u blizini trase nalazi aktivni vulkan. Ovakav teren iziskivao je specifične tehnike rada, maksimalan oprez i besprijekorno umijeće.

SAČUVATI PRIRODU

Milan Golijanin, projekt menadžer Elnos Grupe, pojašnjava da je zadatak, dok rade, što manje narušiti prirodni izgled okoline, te podsjeća da Island u tom segmentu ima posebne standarde.

„Upravo iz tog razloga platforme za montažu stubova ne postoje, a platforme za podizanje su u minimalnim dimenzijama“, ističe Golijanin.

On dodaje da će novi 220 kV dalekovod Suðurnesjalína 2 biti visokonaponska prenosna linija koja povezuje trafostanicu Hamranes sa trafostanicom Njarðvíkurheiði, čime će biti uspostavljena snažna energetska veza između glavne islandske mreže i poluostrva Suðurnes.

SIGURNIJE SNABDIJEVANJE

Kako pojašnjava, za razliku od već postojeće 132 kV dalekovodne linije Suðurnesjalína 1, koja je do sada bila jedina prenosna veza i time predstavljala usko grlo i rizik za snabdijevanje, nova

linija omogućava veći kapacitet prenosa, sigurnije snabdijevanje i manje gubitke energije.

„Time će biti obezbijeđena stabilnost i dugoročna pouzdanost snabdijevanja električnom energijom u regionu gdje se nalazi i međunarodni aerodrom Keflavík, što projektu daje dodatni strateški značaj“, naglašava Golijanin.

STUBOVI ZA EKSTREMNE USLOVE

Na ovoj lokaciji imali smo priliku da radimo montažu i podizanje novih tipova stubova koji se izdvajaju svojom veličinom i snagom. Ovi giganti, visoki od 30 do čak 38 metara i teški do 20 tona, posebno su konstruisani da izdrže najteže vremenske uslove na Islandu. Za razliku od standardnih stubova, nemaju ankere ni potporne sajle – cijelu konstrukciju nosi jedan masivan temelj. Sastavljeni su od segmenata koji se nadovezuju jedan na drugi, a na vrhu nose konzole za provodnike i špic za zemno uže. Na trasi smo do sada montirali šest ovakvih stubova, a njihova visina zahtijevala je i upotrebu specijalne korpe od 40 metara za završnu montažu.

EN The goal of this project, in a country where our teams already have a history of turning bold ideas into reality, was to improve reliability of power supply on the Suðurnes (Reykjanes) Peninsula, as the 132 kV Suðurnesjalína 1 line had so far been the only link powering the area.

TOWERS WEIGHING UP TO 20 TONS

This new mission of ours began at the end of May 2025. From the very first day, the Elnos team worked tirelessly along the 29-kilometer route from Keflavík to Vellir, driven by immense enthusiasm.

Our assignment included assembling and erecting towers, as well as electrical assembly works. In total, 86 towers were installed, ranging

from 19 to 38 meters in height, and weighing between seven and up to 20 tons.

It was anything but a simple task, especially given that the route followed the windswept Reykjanes Peninsula, where wind never rests. The line cut across fields of fresh volcanic soil, with an active volcano looming close by. Such a landscape demanded specialized techniques, utmost caution, and flawless expertise.

PRESERVING NATURE

Milan Golijanin, Project Manager at Elnos Group, explains that the task was to disturb the natural landscape as little as possible, pointing out that Iceland enforces particularly strict standards in this respect.

“For that very reason, no platforms are used for tower assembly, and lifting platforms are kept as small as possible,” Golijanin notes.

He adds that the new 220 kV transmission line Suðurnesjalína 2 will be a high-voltage transmission link connecting substation Hamranes with substation Njarðvíkurheiði, thereby establishing a strong energy connection between Iceland’s main electrical power network and the Suðurnes Peninsula.

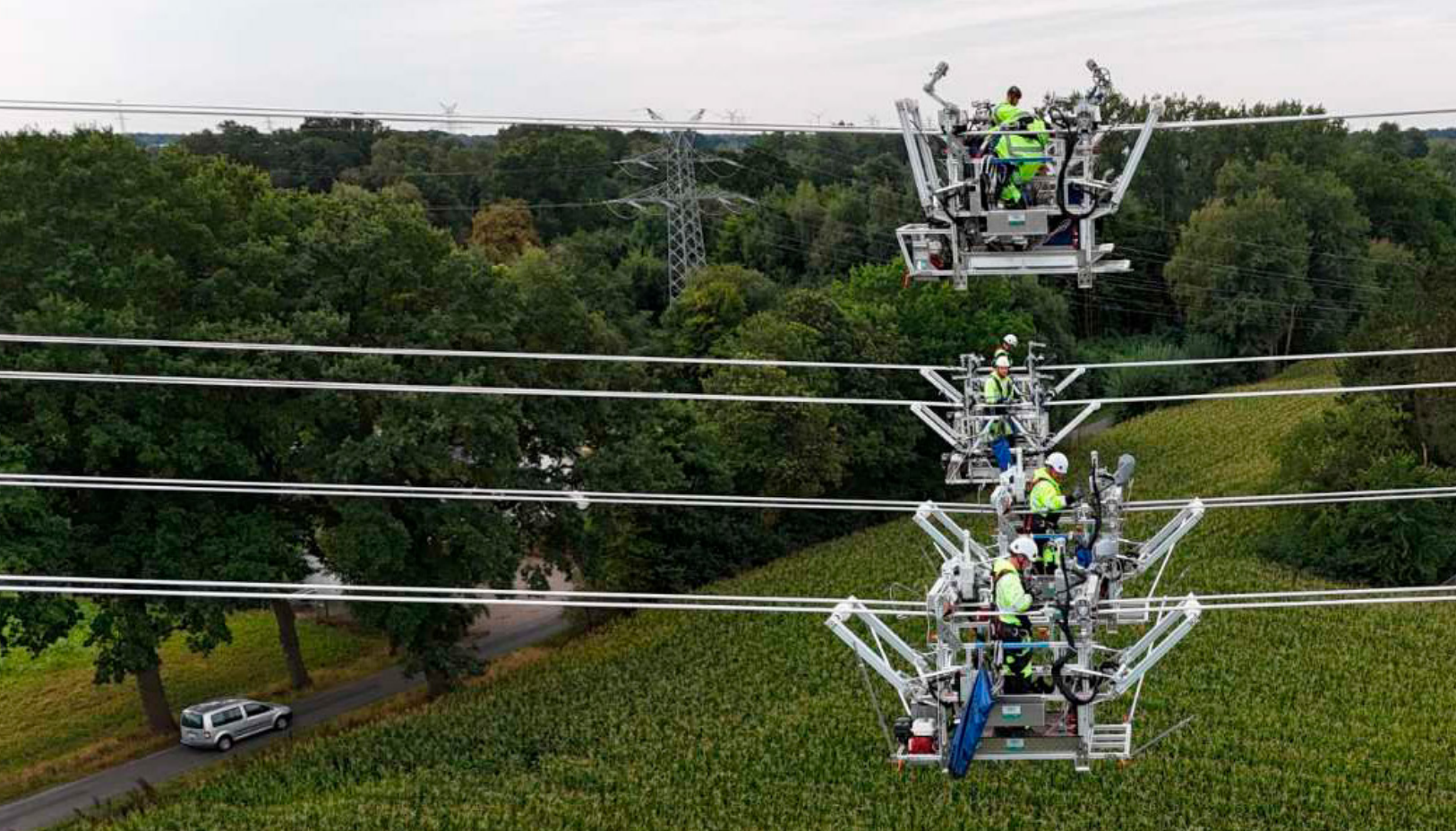
A MORE RELIABLE SUPPLY

As he explains, unlike the existing 132 kV Suðurnesjalína 1 line, which until now had been the sole transmission link, creating both a bottleneck and a supply risk, the new line delivers higher transmission capacity, a more reliable power supply, and reduced energy losses.

“This will ensure stability and long-term reliability of the electrical energy supply in the region that also hosts Keflavík International Airport, giving the project additional strategic importance,” Golijanin emphasizes.

TOWERS FOR EXTREME CONDITIONS

At this location we had the opportunity to assemble and erect new types of towers that stand out for their size and strength. These giants, rising from 30 to as much as 38 meters and weighing up to 20 tons, were specially designed to withstand Iceland’s harshest weather conditions. Unlike standard towers, these have no anchors or guy wires – the entire structure rests on a single massive foundation. Built from segments stacked one upon another, with cross-arms and ground wire brackets on top. So far, six such towers have been installed along the route, and their height required the use of a special 40-meter basket for final assembly.



Izgradnja 380 kV dalekovoda Conneforde-Cloppenburg-Merzen Construction of 380 kV transmission line Conneforde-Cloppenburg-Merzen

Novi 400 kV dalekovod u Njemačkoj New 400 kV transmission line in Germany

TAMO GDJE SU VJETROTURBINE NEUMORNE

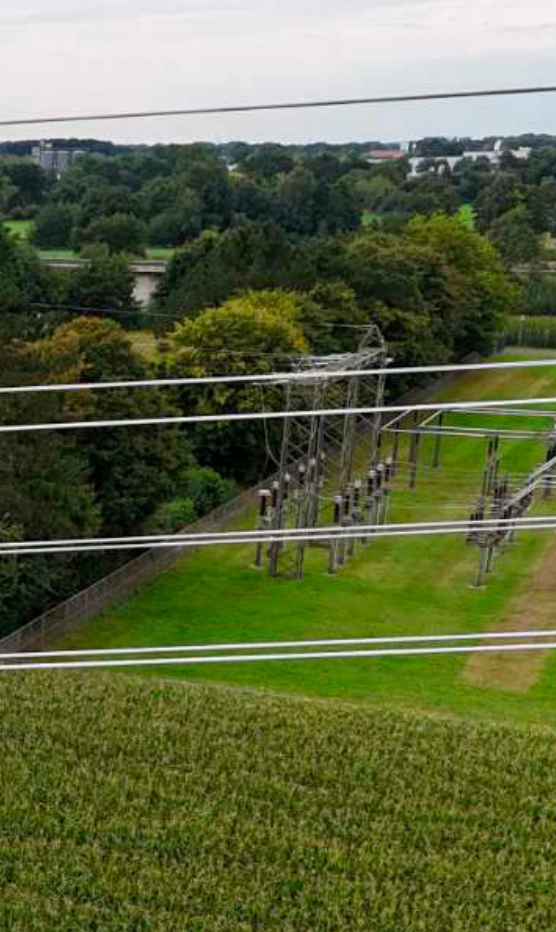
WHERE WIND TURBINES NEVER REST

DA LI STE ZNALI DA NJEMAČKA DO 2030. PLANIRA PROIZVODITI NAJMANJE 80 ODSTO ELEKTRIČNE ENERGIJE IZ OBNOVLJIVIH IZVORA? *U postizanju tog cilja, jednu od ključnih uloga igra vjetroenergija. Zato „putujemo“ u Donju Saksoniju, gdje svaki vaš pogled na neumoran rad vjetroturbina ukazuje na to da je ovaj cilj dostižan.*

DID YOU KNOW THAT BY 2030 GERMANY PLANS TO GENERATE AT LEAST 80 PERCENT OF ITS ELECTRICITY FROM RENEWABLE SOURCES? *Wind power is one of the key forces driving this ambition. That is why we “travel” to Lower Saxony, where each glance at the unending motion of wind turbines confirms that the goal set is within reach.*

SR Baš u ovoj pokrajini, gdje se zelena budućnost temelji na snazi vjetra, naš tim je udario snažan pečat na izgradnji novog 380 kV dalekovoda Conneforde-Cloppenburg-Merzen. Ova priča počinje u februaru 2024. godine...

Bilo je dana kada jaka kiša ne bi prestajala. Saveznik joj je bio neumoran vjetar. Ali to nije sve: posao je obavljan bez prekida napajanja, iznad postojećih vodova, zbog čega je bio neophodan dodatni oprez za bezbjedan rad. Nakon nepune dvije godine, tokom kojih smo, s jedne



strane, imali brojne izazove, a sa druge nepokolebljivu želju za još jednim podvigom – ponosni smo na uspješno završen projekat.

U SLUŽBI INTEGRACIJE ZELENE ENERGIJE

U pitanju je dalekovod ključan za integraciju obnovljivih izvora energije i stabilizaciju mreže, a riječ je o projektu koji je dio šire strategije modernizacije njemačke elektroenergetske infrastrukture, kako bi se potrošačima obezbijedio pouzdan prenos električne energije proizvedene iz obnovljivih izvora.

Dužina dalekovoda Conneforde-Cloppenburg-Merzen iznosi 60 kilometara i ovaj proces je podrazumijevao četiri provodnika po fazi, što je specifično za Njemačku. U pitanju je integracija duplog OPGW kabla za stabilniji prenos podataka, a o kakvom je izazovu riječ, najbolje svjedoči podatak da nije bilo isključenja mreže, što je iziskivalo primjenu naprednih metoda zaštite na radu.

Kao ključni izvođač elektromontažnih radova, Elnos Grupa je u ovom projektu imala značajnu ulogu u instalaciji novih provodnika i OPGW kabla te ostalim elektromontažnim radovima.

Naša uloga ogledala se i u saradnji s lokalnim i regionalnim operaterima mreže radi preciznog planiranja fazne implementacije projekta, te osiguravanju visokog standarda bezbjednosti kroz obuku radnika i korištenje zaštitne opreme specijalno razvijene za radove na visokonaponskim dalekovodima.

KIŠA, VJETAR, PREKIDI...

„Najveći izazovi u realizaciji bili su rad iznad postojećih vodova, uz instalaciju pomoćnih stubova i specijalnih zaštitnih struktura, kao i korištenje privremenih portala iznad aktivnih vodova kako bi se omogućio siguran rad na visini“, rekao je Branko Marković, projekt menadžer Elnos Grupe.

Podsjetio je i na rad na područjima poljoprivrednog značaja, gdje su morali biti sprovedeni dodatni ekološki protokoli radi minimiziranja uticaja na zemljište i lokalnu zajednicu.

„Stalna kiša i vjetar često su prekidali radove i zahtijevali dinamično prilagođavanje vremenskim uslovima. Osim toga, jedan od izazova bila je i stroga ekološka regulativa, koja zahtijeva precizno planiranje i poštovanje svih zakonskih odredaba o zaštiti prirodnih resursa“, naveo je Marković.

REZULTATI BEZ PREMCA

Realizacija ovog posla, naime, donijela je dugoročno poboljšanje stabilnosti i pouzdanosti elektroenergetske mreže, kroz jačanje kapaciteta ključne infrastrukture.

Projekat je rezultirao i smanjenjem gubitaka u prenosu električne energije, što doprinosi efikasnijoj distribuciji energije na nacionalnom nivou i smanjenju finansijskih gubitaka. Osim toga, u pitanju je i podrška njemačkoj energetske tranziciji, kroz optimizaciju prenosa električne energije proizvedene iz obnovljivih izvora. Ovaj projekat predstavlja nastavak uspješne saradnje sa kompanijom C-team.

EM In this very region, where the future is powered by the force of the wind, our team has left a defining mark on the construction of the new 380 kV transmission line Conneforde-Cloppenburg-Merzen. The story begins in February 2024...

There were days when heavy rain showed no sign of stopping, carried along by relentless winds. But the weather was not the only challenge: the work was carried out without interruption of the power supply, high above existing lines, where every step required an extra measure of caution to ensure safety. In less than two years — marked by obstacles on one side and an unwavering determination on the other — we take pride in a project successfully brought to completion.

SERVING THE INTEGRATION OF GREEN ENERGY

As part of Germany's broader push to modernize its electrical infrastructure, the Conneforde-

-Cloppenburg-Merzen transmission line has become a key link for integrating renewable energy sources and stabilizing the grid. Stretching 60 kilometers, it was built with four conductors per phase – a specification unique to Germany – and includes a double OPGW cable to secure more reliable data transmission. The complexity of the challenge is perhaps best illustrated by the fact that the works were carried out without interruption of the power supply, a condition that demanded advanced safety methods.

As the lead contractor for electrical assembly works, Elnos Group played a vital role in installing the new conductors and OPGW cable, along with other assembly tasks.

Our contribution also extended to cooperation with local and regional network operators in planning the phased implementation, while ensuring the highest safety standards through worker training and the use of protective equipment developed specifically for high-voltage transmission lines.

RAIN, WIND, INTERRUPTIONS...

“The greatest challenges during execution were working above existing lines, installing auxiliary poles and special safety structures, and using temporary portals over active lines to ensure safe work at height,” said Branko Marković, Project Manager at Elnos Group.

He recalled work carried out in agricultural areas, where additional environmental protocols had to be applied to minimize impact on the land and local communities.

“Persistent rain and wind often interrupted the work and required constant adjustments to weather conditions. On top of that, another challenge was strict environmental regulations, which demanded careful planning and full compliance with legal provisions on natural resource protection,” Marković added.

UNPARALLELED RESULTS

The completion of this project has brought long-term improvements in the stability and reliability of the electrical power network by reinforcing the capacity of critical infrastructure.

It has also reduced transmission losses, contributing to more efficient energy distribution on the national level and lowering financial costs. Above all, the project stands as support for Germany's energy transition, by optimizing the transmission of electricity generated from renewable sources. This project represents a continuation of the successful cooperation with the company C-team.

Novo poglavlje u Švedskoj

DIGITALNA ERA TRAFOSTANICA

New chapter in Sweden

DIGITAL ERA OF SUBSTATIONS

ABBA, VOLVO, SPOTIFY I IKEA – NA KOJU ZEMLJU VAS ASOCIRAJU?

Sigurni smo da ste odmah pogodili – riječ je o Švedskoj. Ova zemlja ne prednjači samo u dizajnu i inovacijama, već i u modernizaciji elektroenergetskog sistema. Švedska intenzivno ulaže u digitalizaciju, automatizaciju i unapređenje svoje prenosne mreže, podižući standarde pouzdanosti i energetske sigurnosti. Već 13 godina učestvujemo u modernizaciji švedske prenosne mreže, a ove godine snažan trag ostavili smo u oblasti trafostanica.

ABBA, VOLVO, SPOTIFY AND IKEA – WHICH COUNTRY DO THEY BRING TO MIND?

For most readers, the answer comes instantly – Sweden. Known worldwide for design and innovation, the country has quietly earned a similar reputation in another field: the modernization of its power system. Through sustained investment in digitalization, automation and the renewal of its transmission network, Sweden continues to raise expectations for reliability and energy security. We have been part of that process for thirteen years. This year, our work has been especially visible in the development of substations.

SR PRVA DIGITALNA TRAFOSTANICA

Izgradnja 400 kV trafostanice Åker predstavlja novi iskorak u razvoju švedske energetske infrastrukture. Ovo je prva digitalna trafostanica koju je razvila kompanija Svenska Kraftnät i predstavlja prekretnicu u razvoju energetske infrastrukture. Naša kompanija, zajedno sa partnerom Omexom Švedska, gradi ovu trafostanicu.

„Trafostanica Åker predstavlja važan korak u evoluciji energetskog sistema. Ona je model koji će postati osnova budućih standarda u branši. Ovaj tip trafostanice ‘sam sebe’ nadgleda, ima automatsko upravljanje, na njoj se brže otklanjaju kvarovi i efikasnije planira održavanje, donoseći niz benefita kakvima teži energetika modernog doba“, rekao je Nenad Vukomanović, direktor Elnos Nordica AB.

U sklopu ovog projekta tokom 2025. godine završili smo veći dio primarnih radova – izgradnju postrojenja u polju, ugradnju čeličnih portala i nosača opreme, kompletnu visokonaponsku opremu sa primarnim vezama, polaganje kablova te montažu digitalizovanih ormara. Tokom zime i početkom 2026. godine planiramo završiti sisteme upravljanja i zaštite, kao i kompletno povezivanje i uspostavljanje optičkih veza.

REKONSTRUKCIJA 400 kV TRAFOSTANICA

U našem fokusu su i velike rekonstrukcije 400 kV trafostanica. Jedna od njih je Glan, čiju rekonstrukciju radimo zajedno sa kompanijom Siemens Energy AB, a druga Kimstad, koju rekonstruišemo sa firmom Linxon. Ove trafostanice su dio sistema Svenska Kraftnät.

Na terenu – 400 kV TS Åker On site – 400 kV SS Åker





Ekipe u akciji Teams in action



Bezbednost i kvalitet na prvom mjestu Safety and quality first

„Kroz ove projekte nastavljamo sa uspješnim poduhvatima kompletnih rekonstrukcija objekata na najvećem naponskom nivou u Švedskoj. Rekonstrukcija trafostanice Glan odvijala se punim intenzitetom tokom 2025. godine. U Kimstadu smo u međuvremenu započeli pripreme radove, a kompletna rekonstrukcija realizovaće se u etapama sve do sredine 2027. godine“, rekao je Radovan Spasojević, projekt menadžer Elnos Nordica AB.

Objekti rekonstrukcije obuhvataju složene elektromontažne radove na rasklopnim postrojenjima sa dvostrukim sistemom sabirnica i izgradnju novih polja, čime se povećava kapacitet i operativna fleksibilnost mreže. Ovi poduhvati značajno doprinose energetskej tranziciji i unapređenju pouzdanosti švedske elektroenergetske infrastrukture.

EN FIRST DIGITAL SUBSTATION

The construction of the 400 kV substation Åker marks a decisive step in the development of Sweden's energy infrastructure. As the first digital substation developed by Svenska Kraftnät, the project represents a turning point for the sector and a reference point for what

follows. Our company is building the substation together with our partner, Omexom Sweden.

“The Åker substation represents an important stage in the evolution of the energy system. It is a model that will form the basis of future industry standards. This type of substation monitors its own operation, enables automated control, allows faults to be resolved more quickly, and makes maintenance planning more efficient. It brings precisely the kind of benefits the energy sector now strives for,” said Nenad Vukomanović, Director of Elnos Nordic AB.

As part of this project, in 2025 we completed most of the primary works: construction of switchyard bays, installation of steel gantries and equipment support structures, installation of all high voltage equipment with primary connections, cable laying, and installation of digitalized cabinets. During the winter period and in early 2026, the focus will shift to the completion of control and protection systems, along with full system integration and the establishment of optical communication links.

RECONSTRUCTION OF 400 kV SUBSTATIONS

Alongside new builds, large scale reconstructions of existing 400 kV substations remain

a central part of our work in Sweden. One such project is substation Glan, where reconstruction is being carried out in cooperation with Siemens Energy AB. Another is Kimstad, where we are working together with Linxon. Both substations form part of the Svenska Kraftnät transmission system.

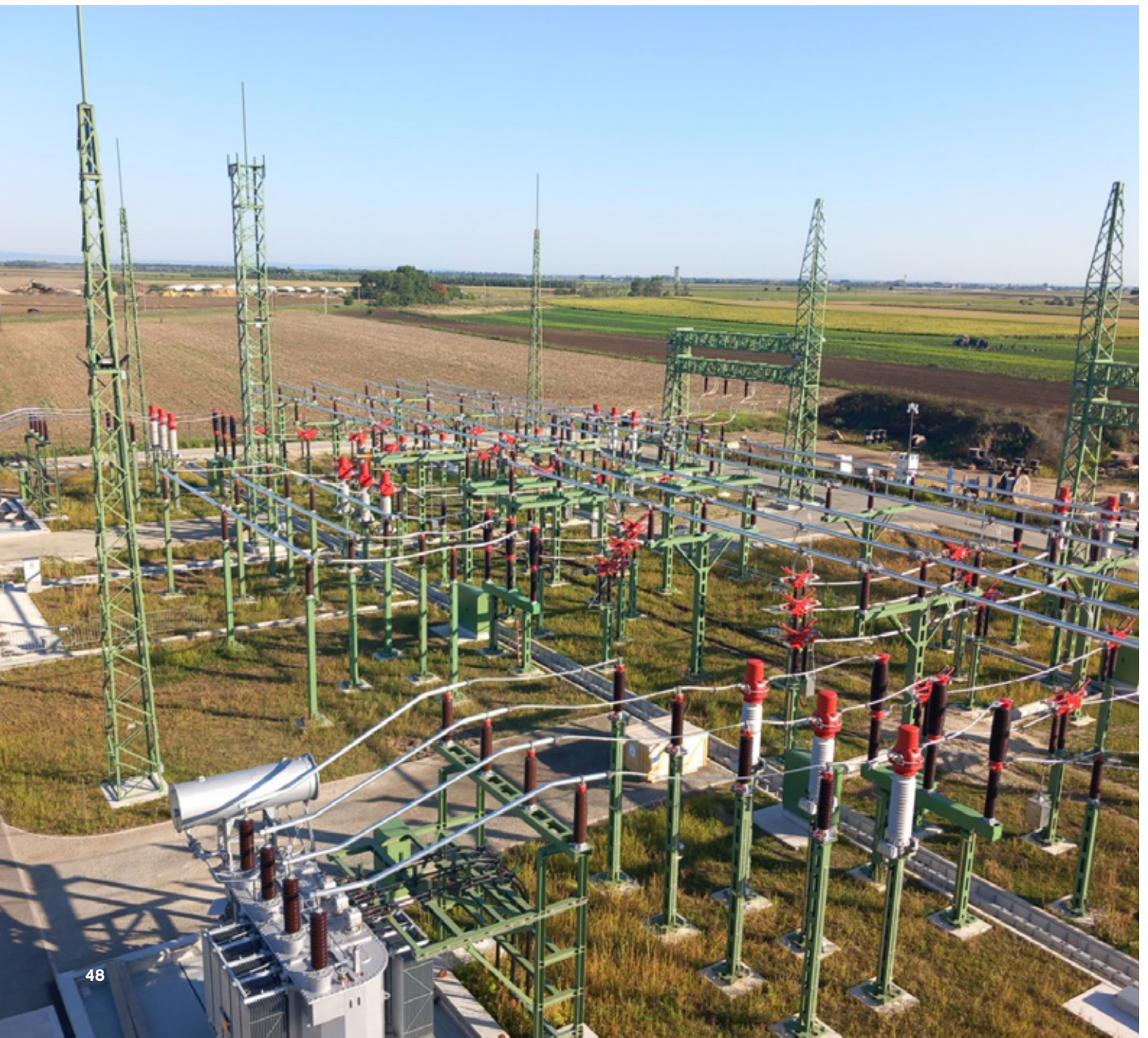
“Through these projects, we are continuing a series of successful full scale reconstructions at the highest voltage level in Sweden. Works at the substation Glan progressed at full intensity throughout 2025. In Kimstad, preliminary works are already under way, while the complete reconstruction will be carried out in phases through to mid-2027,” said Radovan Spasojević, Project Manager at Elnos Nordic AB.

Both reconstruction projects involve complex electrical installation works on switchgear with double busbar systems, as well as the construction of new bays. These upgrades increase network capacity and operational flexibility, while making a meaningful contribution to the energy transition and to the long term reliability of Sweden's power infrastructure.

SNAŽNIJA MREŽA, ZELENIJA AUSTRIJA

STRONGER GRID FOR A GREENER AUSTRIA

110/20 kV trafostanica Wallern 110/20 kV substation Wallern



AUSTRIJA SPADA MEĐU EVROPSKE PREDVODNIKE U KORIŠTENJU OBNOVLJIVIH IZVORA ENERGIJE.

Danas oko 85 odsto njene električne energije dolazi upravo iz obnovljivih izvora, što je 15 odsto više od evropskog prosjeka. Upravo u zemlji Alpa i Mocarta gradimo dvije trafostanice koje će u budućnosti biti važna čvorišta za upliv novih zelenih megavata u mrežu.

AUSTRIA RANKS AMONG EUROPE'S FRONTRUNNERS IN RENEWABLE ENERGY USE.

Today, about 85 percent of its electricity comes from renewable sources, which is 15 percent more than the European average. It is here, in the land of the Alps and Mozart, that we are building two substations set to become key gateways for the flow of new green megawatts into the national grid.

SR DVA BITNA POGLAVLJA

Dva naša ključna projekta u Austriji su izgradnja trafostanica 110/30/20 kV Güssing i 110/20 kV Wallern. Prva, Güssing, gradi se kako bi preuzela potrošače sa stare, obližnje trafostanice, koja će biti ugašena, a završetak radova planiran je za maj 2026. Druga trafostanica, Wallern (110/20 kV), udaljena je oko 100 kilometara sjeveroistočno od terena trafostanice Güssing. Ona je novo, važno čvorište ovog dijela mreže i na njoj su radovi uspješno završeni u avgustu 2025.

Zaduženja na ova dva projekta skoro su identična, s tim što je obim posla na izgradnji trafostanice Wallern bio manji, jer je u pitanju jedna faza (samo 110 kV i 20 kV postrojenja), za razliku od Güssinga (dodatno i 30 kV postrojenje).

Oba projekta vodi investitor Netz Burgenland, dok je Elnos Grupu angažovala kompanija Cteam Energietechnik GmbH.

PARALELNA DINAMIKA

Kako nam priča Dragan Jurošević, rukovodilac Divizije za trafostanice u Elnosu BL, dok su radovi na ove dvije trafostanice tekli paralelno, od februara do maja 2025. godine, bilo je angažovano oko 15 ljudi. Izazova nije nedostajalo.

„Vrijeme je bilo promjenljivo. Za jedan dio poslova, poput podizanja primarne opreme, bilo je gotovo idealno, a najzahtjevniji su bili specifični zahtjevi investitora vezani za sistem upravljanja“, objašnjava Jurošević.

On je istakao da je za vrijeme izvođenja oba projekta postavljen i povezan imponozantan broj kablova, što je samo po sebi bio veliki izazov.

„Uslovi za rad sa sredjonaponskim kablovima bili su katastrofalni – velike kiše i loše vrijeme dodatno su otežavali posao. Ipak, radovi su morali biti završeni, jer su izvođači iskopali rovove isključivo za kablove, dok su ostale faze čekale završetak prethodnih poslova“, zaključuje on.

Kada se podvuče linija, u 2025. godini na trafostanici Güssing završili smo veći dio prve etape (instalacija 110 kV opreme, 20 kV opreme, ormara zaštite i upravljanja), dok je trafostanica Wallern već postala važno čvorište integracije novih zelenih kapaciteta u mrežu.

Završetak ove dvije trafostanice predstavlja još jedan bitan korak u ambicioznim, novim zelenim planovima Austrije.

EN TWO KEY CHAPTERS

Our two main projects in Austria are the construction of the 110/30/20 kV substation Güssing and 110/20 kV substation Wallern. The first, Güssing, is being built to take over consumers from an older nearby facility scheduled for decommissioning, with completion of construction works planned for May 2026. The second, Wallern, located roughly 100 kilometres north-east of Güssing, represents a new and vital node in this part of the network. Work there was successfully completed in August 2025.

The scope of work on both projects was almost identical, although Wallern required less time and labour, since it included a single phase (110 kV and 20 kV facilities only) unlike Güssing, where a 30 kV installation was added.

Both projects were commissioned by Netz Burgenland, while Elnos Group was engaged by Cteam Energietechnik GmbH.

PARALLEL PROGRESS

According to Dragan Jurošević, Head of the Substations Division at Elnos BL, construction on both sites advanced simultaneously between



Spremni za izazove Ready for challenges

February and May 2025, with a team of around 15 people on the sites. The work came with its share of challenges.

“The weather kept changing. Yet, for certain stages, like installing the primary equipment, it was almost ideal. The most demanding part of the project involved the investor’s specific requirements for the control system,” Jurošević explains.

He notes that during both projects, an impressive number of cables were installed and interconnected, which was a demanding task in itself.

“Working with medium-voltage cables was extremely difficult. Heavy rain and poor conditions made the job even tougher. Still, the work had to continue. The trenches had previously been dug exclusively for the cables and other stages of works were waiting for these to be completed,” he adds.

Looking back, 2025 brought major progress. At substation Güssing, we completed most of the first phase which implies installation of 110 kV and 20 kV equipment, as well as protection and control cabinets. Meanwhile, substation Wallern has already become an essential hub for integrating new renewable capacity into the grid.

The completion of these two substations marks another significant step forward in Austria’s ambitious green energy plans.

BIH

BOSNA I HERCEGOVINA: IZGRAĐENA TRAFOSTANICA BANJALUKA 9 BOSNIA AND HERZEGOVINA: SUBSTATION BANJA LUKA 9 IS BUILT

SR Izgradnja nove 110/x kV trafostanice predstavlja jedan od najznačajnijih energetske projekata u gradu na Vrbasu u posljednjim decenijama. Riječ je o trafostanici kaskadnog tipa, izgrađenoj na više nivoa – na tehnički zahtjevnom terenu, gdje su građevinski i elektro radovi pred naš tim postavili visoke zahtjeve struke do posljednjeg detalja.

Ova trafostanica je u potpunosti preuzela funkciju stare 35/10 kV trafostanice Sitari, čija je infrastruktura starija od 40 godina. Njena postrojenja su integrisana u novi sistem, čime je stvoren moderan elektroenergetski čvor za buduće potrebe grada.

Elnos Grupa bila je nosilac kompletnog projekta – od građevinskih radova do elektro-montaže 110 kV postrojenja, radova na srednjonaponskim poljima, ugradnje SCADA sistema te upravljačke i zaštitne opreme.

Posebna važnost projekta ogleda se u činjenici da je pouzdanost mreže u ovom dijelu grada bila na niskom nivou. Podizanjem naponskog nivoa na 110 kV značajno su povećani stabilnost sistema i kapacitet trafostanice, čime je otvoren prostor za dalji razvoj urbanih i industrijskih zona Banjaluke.

EN The construction of the new 110/x kV substation represents one of the most important energy projects in the city on the Vrbas in recent decades. It is a cascade-type facility, built on several levels of technically demanding terrain, where civil engineering and electrical works placed high professional demands on our team down to the last detail.

This substation has completely taken over the function of the old 35/10 kV substation Sitari, whose infrastructure is more than 40 years old. Its installations have been integrated into the new system, creating a modern power node designed to meet the city's future needs.

Elnos Group was responsible for the entire project – from civil engineering works to the electrical installation of the 110 kV plant, works on the medium-voltage bays, and the installation of the SCADA system together with control and protection equipment.

The project's importance lies in the fact that the reliability of the electrical power network in this part of the city had been low. With the voltage level now raised to 110 kV, the system's stability and the substation's capacity have increased significantly, opening the way for further development of Banjaluka's urban and industrial zones.



PL

POLJSKA: NOVA VEZA ZA ENERGIJU VJETRA POLAND: NEW LINK FOR WIND ENERGY

SR U sjeverozapadnom dijelu Poljske, u regiji snažno orijentisanoj na proizvodnju električne energije iz vjetra, naše ekipe realizovale su rekonstrukciju 110 kV dalekovoda Człuchów-Rychnowy. Riječ je o strateškom projektu koji ima ključnu ulogu u integraciji energije iz obližnjih vjetroparkova u regionalnu elektroenergetsku mrežu.

Tokom protekle dvije godine Elnos Grupa učestvovala je u ovom važnom energetsom poduhvatu, čiji je cilj povećanje sigurnosti prenosa i obezbjeđivanje stabilnih koridora za priključenje obnovljivih izvora. Rekonstrukcija ove prenosne veze, duge 7,5 kilometara, podrazumijevala je podizanje novih stubova i opsežne elektromontažne radove.

Kroz energetska tranziciju, u okviru koje vjetar postaje stub buduće proizvodnje električne energije, projekti poput ovog stvaraju preduslove za energetska nezavisnost i održivi razvoj.

EN In the northwestern part of Poland, a region known for its steady winds and growing capacity for clean power, our teams carried out the reconstruction of the 110 kV transmission line Człuchów-Rychnowy. The project holds strategic importance, connecting nearby wind parks with the regional electrical power network and strengthening the system that channels their power across the grid.

Over the past two years, Elnos Group took part in this demanding work, designed to improve the security of transmission and secure stable routes for connecting renewable sources. Along its 7.5-kilometer span, the reconstruction included the erection of new towers and large-scale electrical assembly works.

Within the ongoing energy transition, where wind is becoming a foundation of electricity generation, projects like this one quietly prepare the ground for energy independence and sustainable growth.



SR

SRBILJA: NOVO GIS ČVORIŠTE U BEOGRADU SERBIA: NEW GIS NODE IN BELGRADE

SR Timovi Elnosa u beogradskom naselju Surčin realizuju novi poduhvat u oblasti GIS trafostanica – izgradnju nove 110/35 kV GIS trafostanice Beograd 44, elektroenergetskog objekta koji će biti od ključnog značaja za napajanje budućeg EXPO kompleksa i Nacionalnog stadiona te širenje infrastrukture Beograda.

Elnos Grupa, u konzorcijumu sa kompanijom Montprojekt, izvodi projekat po sistemu „ključ u ruke” – od projektovanja i građevinskih radova, do ugradnje Siemens GIS postrojenja (110 kV i 35 kV), transformatora 2 x 31,5 MVA, sekundarnog povezivanja i puštanja u rad.

Specifičnost trafostanice ogleda se u primjeni napredne GIS tehnologije i izgradnji na zahtjevnoj lokaciji pored kanala Nova Galovica.

Ova trafostanica će postati novo energetska čvorište od strateškog značaja i oslonac za razvoj velike infrastrukture i budućih energetska potreba u zapadnom dijelu srpske metropole.

EN In Surčin, on the outskirts of Belgrade, Elnos teams are carrying out a new GIS substation project – the construction of the 110/35 kV GIS substation Belgrade 44. This facility will be of key importance for supplying the future EXPO complex and the National Stadium, as well as for supporting the wider development of Belgrade’s infrastructure.

Elnos Group, working in consortium with Montprojekt, is delivering the project on a turnkey basis – from design and civil engineering to the installation of Siemens GIS plant (110 kV and 35 kV), two 31.5 MVA transformers, secondary circuit connections, and final commissioning.

The distinctive character of this substation lies in the use of advanced GIS technology and in its construction on a demanding site beside the Nova Galovica canal.

Once in operation, it will stand as a new energy node of strategic importance and a foundation for the growth of major infrastructure and future power needs in the western part of the Serbian capital.





Foto: 2TDK Photo: 2TDK

Nova pruga daje vjetar u leđa luci Kopar New rail line boosts Port of Koper

ŽELJEZNIČKO ČUDO SLOVENIJE

SLOVENIA'S RAILWAY WONDER

PROFESIONALNO, PREDANO I

TEMELJNO – tim vrijednostima vodimo se u svakom poslu. Naše kolege iz ENS-a su to već dokazale na prvoj misiji u okviru izgradnje kolosijeka željezničke pruge Divača–Koper, a sada je došao red na drugo veliko poglavlje na istom terenu.

PROFESSIONALISM, DEDICATION,

AND DILIGENCE – these are the principles that guide every project we undertake. Our colleagues at ENS demonstrated these values during their very first assignment on the construction of railway track Divača–Koper, and now they have returned to the same ground, where a new phase of the project is under way.

SR Riječ je o projektu koji će biti snažan vjetar u leđa poslovanju čuvene luke Kopar i dodatno učvrstiti poziciju Slovenije kao logističkog čvorišta regiona.

Izgradnja drugog kolosijeka pruge Divača–Koper jedan je od najvećih infrastrukturnih poduhvata u Sloveniji. Nova pruga duga je 27,1 kilometar, a povećat će kapacitet i značajno skratiti vrijeme transporta između luke Kopar i unutrašnjosti zemlje. Zanimljivo je da se gotovo cijela trasa, osim 5,4 kilometra na otvorenom,

proteže kroz sedam tunela i na tri vijadukata – upravo na tim najizazovnijim dionicama ENS-u su povjereni radovi.

ZADACI

Aljaž Jerman, projekt menadžer ENS Slovenije, pojašnjava da je fokus kompanije na instalaciji elektroenergetskih sistema u tunelima i na vijaduktima. Ovaj posao obuhvata glavne dovodne kablove i ključne instalacije koje omogućavaju rad sistema detekcije požara, vatrodajave, saobraćajne i sigurnosne signalizacije, ventilacije i drugih sistema neophodnih za funkcionisanje željezničkog tunela.

Instalacijom elektroenergetskih sistema u objektima na otvorenoj trasi podiže se stepen sigurnosti, pouzdanosti i kapacitet sistema. Rezultat za korisnike: manje zastoja, tačniji vozni red, veća protočnost tereta i veći komfor putnika.

„O obimu posla mnogo govori činjenica da će naše ekipe tokom projekta postaviti više od 160 kilometara kablovskih trasa – puteva za polaganje napojnih, signalnih i komunikacionih kablova – te više od 150 kilometara kablovskih polica, koje služe za organizovan, bezbjedan i dugotrajan razvod instalacija. Povjerene su nam i instalacije u transformatorskim prostorijama, ključnim za stabilno napajanje željezničke infrastrukture“, naglašava Jerman i dodaje da je završetak radova planiran za sredinu 2026. godine.

ZAHTEVAN POSAO

Dvojica poslovođa radila su na ovom projektu u 2025. godini, dok je na terenu bilo nekoliko manjih ekipa koje su tempo rada prilagođavale datom trenutku. Jedan od poslovođa je Marko Puc, koji ističe: „Na projektu imamo od deset

do 30 radnika i svakodnevno smo na terenu. U pitanju je veoma zahtjevan posao i uvijek smo u kontaktu sa projektantom kojem predlažemo rješenja.“

U prvom planu pri realizaciji ovog posla jeste i poštovanje ekoloških standarda, baš kao i bezbjednosnih aspekata. Naš uigrani tim sve te izazove lako rješava, u hodu, pa smo dosadašnje poslove realizovali baš kako je i planirano.

EN This ambitious development will give new momentum to the operations of the renowned Port of Koper and further strengthen Slovenia's position as the logistics hub of the region.

The construction of the second track of the railway line Divača–Koper is among the largest infrastructure ventures in the country. The new railway, 27.1 kilometers long, will increase capacity and significantly shorten transport time between the port and the country's interior. Almost the entire route, except for 5.4 kilometers in the open, runs through seven tunnels and over three viaducts – and works on precisely these most demanding sections have been entrusted to ENS.

TASKS

Aljaž Jerman, Project Manager at ENS Slovenia, explains that the works company is to perform are focused on the installation of electrical power systems in the tunnels and on the viaducts. The scope includes the main supply cables and key installations that enable the operation of fire-detection and alarm systems, traffic and safety signaling, ventilation, and other systems essential for the functioning of a modern railway tunnel.

Brojke

Figures



Ukupna dužina
željezničke trase
Total length of
the railway route



Viadukti – na trasi su tri
vijadukta ukupne dužine
Viaducts – 3 viaducts along
the route totaling



Tuneli – 75% trase prolazi kroz sedam tunela dužine 20,5 km
Tunnels – 75 % of the route passes through 7 tunnels totaling

Installing these power systems in facilities along the open section of the route raises the overall level of safety, reliability, and system capacity. The benefit for users is clear: fewer stoppages, more accurate timetables, greater freight flow, and higher passenger comfort.

“The scale of the job is best illustrated by the fact that our teams will install more than 160 kilometers of cable routes – pathways for laying power, signal, and communication cables – as well as more than 150 kilometers of cable trays that ensure organized, safe, and durable distribution of the installations. We have also been entrusted with installations in transformer rooms, which are crucial for maintaining a stable power supply to the railway infrastructure,” Jerman notes, adding that completion of the works is planned for mid-2026.

DEMANDING WORK

Two foremen led the operations on this project during 2025, supported by several smaller site teams that adjusted their pace to the circumstances of each phase. One of the foremen, Marko Puc, says: “We have a team of between 10 and 30 workers on site each day. The work is extremely demanding, and we stay in close contact with the designer, constantly discussing and proposing solutions.”

Environmental protection is at the forefront of this project, together with all safety requirements. Our well-coordinated team handles these challenges with ease as they arise, ensuring that every task so far has been carried out exactly as planned.

Većina trase vodi kroz tunele Route largely in tunnels



GDJE UŽARENE PEĆI DOSTIŽU 1.500°C

WHERE RED-HOT FURNACES REACH 1,500°C



PMP Jelšingrad — livnica na 20.000 m² PMP Jelšingrad — a 20,000 m² foundry

DA LI STE SE ZAPITALI *kako je moguće da elektroinstalacije besprijekorno funkcionišu u postrojenjima jedne livnice, u čijim užarenim pećima temperature dostižu nevjerovatnih 1.500°C? Moguće je – kada iza svakog kabla, spoja i ormara stoje precizan rad i znanje.*

HAVE YOU EVER WONDERED *how it is possible for electrical installations to function flawlessly inside a foundry where furnace temperatures reach an astonishing 1,500°C? The answer lies in precision and knowledge invested in every cable, joint, and control cabinet.*

SR To smo dokazali i pri našem angažmanu na grandioznom poduhvatu u Aleksandrovcu, nadomak Laktaša, gdje se ponosno „izdigla“ Livnica PMP Jelšingrad, kompleksni privredni objekat koji će „ležati“ na čak 20.000 metara kvadratnih, a koji je razvijen u skladu sa najvišim evropskim standardima u oblasti livarstva.

IZAZOV KOJI INSPIRIŠE

Svjesni obima i odgovornosti ovog projekta, svaki izazov rješavali smo tražeći najbolje inženjersko rješenje – ne kompromis. Budući

da se cjelokupan koncept projektovanja i izgradnje postrojenja temelji na principima automatizacije, energetske efikasnosti i ekološke održivosti, što ovu livnicu svrstava u red najmodernijih u Evropi, to nam je bio dodatni, snažan motiv, dok smo redali kockicu po kockicu u mozaiku naših složenih zaduženja.

SNAGA OD 17 MEGAVATA

Naš tim bio je zadužen za izradu dijela projektne dokumentacije, izvođenje elektroinstalaterskih radova, montažu 20/0,4 kV trafostanice, rasklopnog objekta te priključnog dalekovoda od TS 110/20 kV Laktaši 2 do livnice.

„Radi se o 17 MW instalisane snage. Od toga imamo dva energetska transformatora snage 4.500 kVA za potrebe napajanja livnih peći, jedan energetski transformator snage 550 kVA za potrebe napajanja livnog automata i nekoliko energetskih transformatora ukupne instalisane snage 7.850 kVA za potrebe napajanja ostalih potrošača u objektu livnice“, pojašnjava Đorđe Pašić, projekt menadžer Elnosa BL.

U kompletnoj ovoj poslovnoj priči najimpresivniji zadatak bio je postaviti i dimenzionirati elektroinstalacije u postrojenju u kojem se razvijaju nevjerojatno visoke temperature.

EKSTREMNE TEMPERATURE

Naime, u pećima za topljenje metala temperatura se obično kreću u rasponu od 1.300°C do 1.500°C za čelik i srodne legure, dok su radne temperature u zoni izlivanja i obrade kalupa nešto niže, ali opet ogromne – prosječno između 800°C i 1.200°C.

Sam pogled na ove brojeve nosi sa sobom određenu tehničku težinu. Međutim, pravilnim odabirom kablova, dimenzioniranjem elektroinstalacija i pažljivim planiranjem kablovskih trasa uspjeli smo maksimalno obezbijediti pouzdan i efikasan rad ovog dijela livnice.

„Elektroinstalacije u okviru Livnice PMP Jelšingrad projektovane su i izvedene u skladu s najvišim evropskim standardima, uz posebnu pažnju za sigurnost, pouzdanost i otpornost na zahtjevne uslove rada. Korištena su termootporna kablovska rješenja, razvodni ormari sa visokim stepenom zaštite, kao i napredni sistemi ventilacije i uzemljenja. Na taj način obezbijedena je stabilnost elektroenergetskog sistema i kontinuitet rada čak i u uslovima povišenih temperatura i industrijskog opterećenja karakterističnog za livarsku proizvodnju“, pojašnjava Mehmed Okanović, inženjer saradnik Elnosa BL.

POGLED UNAPRIJED

Radovi na izgradnji livnice započeli su početkom 2024. godine, a uspješno su završeni u septembru 2025. Ovaj projekat italijanske kompanije

PMP Industries, giganta u proizvodnji odlivaka za radne mašine, predstavlja strateški iskorak u industrijskom razvoju regiona.

EN This was confirmed in practice during our work in Aleksandrovac near Laktaši, where the PMP Jelšingrad Foundry has risen with pride; a vast industrial complex that rests on 20,000 square meters of ground, built in full accordance with the highest European standards in foundry production.

CHALLENGE THAT INSPIRES

We met each challenge with determination to find the best engineering solution, never settling for a compromise. The fact that the entire concept of plant's design and construction was founded on automation, energy efficiency, and environmental sustainability placed it among the most advanced foundries in Europe. This gave us strong additional motivation as we worked piece by piece through our complex assignments.

POWER OF 17 MEGAWATTS

Our team was responsible for preparing part of the design documentation, carrying out electrical installation works, installing the 20/0.4 kV substation, the switchgear facility, and the connection transmission line leading from the 110/20 kV substation Laktaši 2 to the foundry.

“The system has a total installed capacity of 17 MW. It includes two 4,500 kVA power transformers for supplying the foundry furnaces, one 550 kVA power transformer for supplying the casting machine, and several power transformers with a total installed capacity of 7,850 kVA for supplying other consumers within the foundry,” explains Đorđe Pašić, Project Manager at Elnos BL.

Among all the tasks in this project, the most demanding one was designing and installing the electrical system inside a plant where exceptionally high temperatures develop.

EXTREME TEMPERATURES

Specifically, in furnaces used for melting metal, temperatures for steel and related alloys typically range from 1,300°C to 1,500°C, while operating temperatures in the pouring and mold processing zones are lower yet still substantial, on average between 800°C and 1,200°C.

Even a glance at these figures carries technical weight. With the proper choice of cables, correct sizing of the electrical installation, and careful planning of cable routes, we maximized reliable and efficient operation in this part of the foundry.

“The electrical installations inside the PMP Jelšingrad Foundry were designed and built to meet the highest European standards, with special attention to safety, reliability, and endurance under demanding conditions. Thermal-resistant cable systems were used, distribution cabinets with a high degree of protection, and advanced ventilation and grounding systems. In this way, the stability of the power system and uninterrupted operation were ensured, even under the elevated temperatures and heavy industrial loads typical of foundry production,” explains Mehmed Okanović, Associate engineer at Elnos BL.

LOOKING AHEAD

Construction of the foundry began in early 2024 and was successfully completed in September 2025. Developed by the Italian company PMP Industries, a leading producer of cast components for heavy machinery, the project marks a strategic step in the industrial development of the region.

Instalisana snaga postrojenja iznosi 17 MW Installed plant capacity is 17 MW





Digitalni sistemi – važan link zelene tranzicije Digital systems, a key link in the green transition

OD INFORMACIJA DO INOVACIJE

FROM INFORMATION TO INNOVATION

SOLARNA ELEKTRANA STOLAC, SMJEŠTENA U MJESTU HODOVO, NAJVEĆA JE U BIH. *Termoelektrana*

Pljevlja, sa druge strane, najveći je proizvođač električne energije u Crnoj Gori. Dva postrojenja – dvije epohe. Proizvodnja energije stare i nove škole. Šta ih povezuje?

SOLAR POWER PLANT STOLAC, LOCATED IN HODOVO, IS THE LARGEST IN BOSNIA AND HERZEGOVINA.

Thermal power plant Pljevlja, on the other hand, is the largest producer of electricity in Montenegro. Two facilities – two eras. Energy generation shaped by different technological traditions.

SR Predstavljamo vam priču o digitalnoj transformaciji koja se odvija na dvije lokacije, ali sa zajedničkim ciljem – pokazati kako napredni digitalni sistemi spajaju svijet tradicionalne i obnovljive energetike.

Implementacija savremenih SCADA rješenja „mozga“ koji upravlja postrojenjima i IoT (Internet of Things) tehnologija, koje povezuju uređaje i sisteme u jedinstvenu mrežu, danas omogućava da stari i novi energetske sistemi „govore istim jezikom“ – da se nadgledaju, kontrolišu i optimizuju u realnom vremenu.

SOLARNA ELEKTRANA STOLAC

Ova solarna elektrana snage 125 MWp prostire se na površini od 146 hektara i najveća je solarna elektrana u Bosni i Hercegovini koja radi u kontinuiranom režimu.

Za praćenje rada elektrane u realnom vremenu brine SCADA sistem koji smo implementirali. Odabrali smo Zenon Energy Edition – softversku platformu dovoljno fleksibilnu i pouzdanu za ovako zahtjevne projekte.

„Na ovom projektu imali smo zadatak da napravimo Power Plant Controller – PPC, koji

koristi podatke i aktivno upravlja procesima u realnom vremenu. To je centralni sistem koji koordiniše inverterima i održava stabilan rad elektrane prema mrežnim zahtjevima“, pojašnjava Davor Tepić, vodeći inženjer za automatizaciju i SCADA sisteme u Elnos Grupi.

Glavni izazovi na ovom projektu odnosili su se na testiranje i fino podešavanje kontrolnog sistema (SCADA i PPC) kako bi elektrana u potpunosti ispunila zahtjeve mrežnog kodeksa – posebno u dijelu održavanja napona na mjestu priključenja i upravljanja reaktivnom snagom. Implementirali smo regulator koji precizno kontroliše naponski nivo i faktor snage u skladu sa zadatim parametrima. Zahvaljujući pažljivom testiranju i usklađivanju sistema, postignut je stabilan i pouzdan rad elektrane u 220 kV mreži.

RUDNIK I TE PLJEVLJA

Inovativno rješenje implementirali smo i u termoelektrani Pljevlja, kroz projekat modernizacije i rekonstrukcije sistema automatskog upravljanja u drobilani Maljevac, koja je sastavni dio rudnika Pljevlja.



Pogled izbliza – savremeni upravljački sistem u RITE Pljevlja A closer look – modern control system at Mine & TPP Pljevlja

Cilj projekta bio je uvesti savremeni upravljački sistem koji radi u redundantnom režimu, što znači da sistem ima rezervne, tj. duplirane komponente. Na taj način, ako jedan dio otkáže, drugi automatski preuzima njegovu funkciju, čime se obezbjeđuje neprekidan i pouzdan rad postrojenja.

Pitate se koje su bile slabosti u postojećem sistemu? Bio je zasnovan na staroj relejnoj tehnici, što znači nemogućnost održavanja i već zapostavljen način upravljanja sa mnogo nefikasnih izmjena u sistemu.

Naše ekipe ovdje su učinile sljedeće – implementirale su redundantni PLC sa SCADA sistemom. Modernizovan je cijeli sistem koji upravlja mašinama za drobljenje i transport uglja.

„Novi sistem sada sve to sam nadgleda i kontroliše – brzinu traka, rad motora, eventualne kvarove i sigurnosne prekide. Ako nešto pođe po zlu, sistem odmah reaguje ili upozori operatera. Modernizacijom je postrojenje postalo pouzdanije, sigurnije i potpuno automatizovano“, naveo je Tepić.

Operateri u drobilani upravljaju kompletnim sistemom, dok rukovodilac drobilane ima pregled cijelog procesa na klijentskom računaru koji se nalazi oko 1.500 metara od postrojenja. Istovremeno, uprava rudnika, udaljena oko šest kilometara, putem clouda može da pristupi izvještajima SCADA sistema o količini isporučenog uglja, radu mašina, zastoju u proizvodnji i drugim ključnim parametrima.

EN This text traces a digital transformation taking place at these two locations, guided by a shared aim – to show how advanced digital systems bring together the worlds of traditional

and renewable energy. The implementation of modern SCADA solutions, the “brain” that runs a plant, and IoT technologies that connect devices and systems into a single network, now allows old and new energy systems to “speak the same language” – to be monitored, controlled, and optimized in real time.

SOLAR POWER PLANT STOLAC

With an installed capacity of 125 MWp, this solar power plant spans 146 hectares and is the largest facility of its kind in Bosnia and Herzegovina operating in continuous mode.

Real time monitoring of the plant is handled by the SCADA system we implemented. We selected Zenon Energy Edition – a software platform flexible and reliable enough for a project of this complexity.

“On this project, our task was to build a Power Plant Controller – PPC, which uses data to actively manage processes in real time. It is the central system that coordinates the inverters and keeps the plant operating steadily in line with grid requirements,” explains Davor Tepić, Lead Engineer for Automation and SCADA Systems at Elnos Group.

The main challenges centered on testing and fine tuning the control system (SCADA and PPC) so the plant could fully meet grid code requirements, particularly in maintaining voltage at the point of connection and managing reactive power. We implemented a regulator that precisely controls voltage level and power factor in accordance with the specified parameters. Thanks to careful testing and system alignment, stable and reliable operation of the plant within the 220 kV network was achieved.

MINE AND TPP PLJEVLJA

Innovative solutions were also implemented at thermal power plant Pljevlja through a project to modernize and reconstruct the automatic control system at the crushing plant Maljevac, operating as a part the Pljevlja mine.

The aim was to introduce a modern control system functioning in redundant mode, meaning the system is equipped with standby components. Thanks to this design, if one part fails, the other automatically takes over, ensuring uninterrupted and reliable operation of the facility.

The existing system revealed clear limitations. It was based on older relay technology, which meant maintenance was no longer possible as it relied on a control approach that had already been abandoned, with many inefficient changes made within the system. In response, our teams implemented a redundant PLC together with a SCADA system. The entire system controlling coal crushing and transport machinery was modernized.

“The new system now monitors and controls all of it on its own – conveyor speed, motor operation, potential faults, and safety shutdowns. If anything goes wrong, the system reacts immediately or alerts the operator. With this modernization, the facility has become more reliable, safer, and fully automated,” Tepić noted.

Operators at the crushing plant run the entire system, while the plant manager has an overview of the whole process on a client computer located about 1,500 meters from the facility. At the same time, mine management, around six kilometers away, can access SCADA reports via the cloud on delivered coal volumes, machine operation, production stoppages, and other key parameters.

Donacije i sponzorstva Donations and sponsorships

ZAJEDNIŠTVO POVEZUJE SNAŽNIJE OD MREŽA

HUMAN CONNECTION HOLDS A STRENGTH NO NETWORK CAN MATCH

U SVIJETU KOJI SE BRZO MIJENJA, ELNOS GRUPA NE ZABORAVLJA ONO ŠTO ČINI NJENE TEMELJE:

ljude i zajednice s kojima radi.

Tako kompanija s ponosom stoji iza sportskih timova, kulturnih događaja i duhovnih institucija – jer vjeruje da je trajna vrijednost ona koja gradi i oplemenjuje okruženje.

IN A WORLD THAT CHANGES QUICKLY, ELNOS GROUP HOLDS FIRMLY TO WHAT STANDS AT ITS CORE:

the people and the communities it works with. That is the reason the company proudly supports sports teams, cultural events and spiritual institutions, believing that a value is worthy and lasting only when it builds and enriches the world it grows in.

SR Naša podrška zajednici ogleda se kroz različite projekte i inicijative koje spajaju ljude, kulture i vrijednosti, a ovo su samo neki od projekata koji su nam u 2025. godini posebno prirali uz srce.

U Švedskoj smo postali sponzor Košarkaškog kluba Sloga Uppsala, gdje sport povezuje ljude različitih sredina i daje mladima šansu da rastu u okruženju koje inspiriše. Podrška manastiru Hilandar, najvažnijem središtu duhovnosti srpskog naroda, pokazuje da kompanija čuva duhovno i kulturno nasljeđe koje oplemenjuje generacije. A ove godine, prvi put, Elnos Grupa postala je dio manifestacije „Dani srpske kulture u Pragu“ – simbolički korak koji potvrđuje vjeru kompanije u kulturu kao most između zemalja i generacija.

Svaki od ovih projekata nije samo doprinos zajednici – to su priče, prilike i mostovi. Elnos Grupa nije samo kompanija koja stvara infrastrukturu – ona stvara zajednicu u kojoj živi, raste i s kojom gradi budućnost.

EN Our support for the community is expressed through projects and initiatives that bring together people, cultures and values. These are just a few that meant the most to us in 2025.

In Sweden, we became a sponsor of Basketball Club Sloga Uppsala, where sport draws together young players from diverse backgrounds and gives them room to grow in an inspiring environment.

Our support for Hilandar Monastery, the spiritual home of the Serbian people, reflects our commitment to preserving a heritage that has nurtured generations. And this year, for the first time, Elnos Group joined the Days of Serbian Culture in Prague, a symbolic step that highlights our belief in culture as a bridge between countries and generations. These projects are far more than contributions. They are stories carried forward, opportunities opened and bridges laid for generations to come. Through them, Elnos Group becomes more than a company that builds infrastructure. It becomes one that builds the community it lives in, grows with and shares its future with.



Dani srpske kulture u Pragu
Days of Serbian Culture in Prague



Manastir Hilandar
Hilandar Monastery



KK Sloga Uppsala
KK Sloga Uppsala



Kroz objektiv

THROUGH THE OBJECTIVE

OVE GODINE ELNOS GRUPA UČESTVOVALA JE NA BROJNIM VAŽNIM KONFERENCIJAMA I SAJMOVIMA ŠIROM REGIJE I EVROPE. Pogledajte kako su ti susreti i događaji izgledali kroz objektiv - svaka fotografija predstavlja jedan od mnogobrojnih utisaka koje nosimo sa sobom.



Energetika 2025, Zlatibor
Energetics 2025, Zlatibor

THIS YEAR, ELNOS GROUP TOOK PART IN NUMEROUS IMPORTANT CONFERENCES AND TRADE FAIRS ACROSS THE REGION AND EUROPE. Take a look at how these meetings and events were captured through the lens - each photograph represents just one of the many impressions we carry with us.



Balkan solar samit 2025, Banjaluka
Balkan Solar Summit 2025, Banja Luka



CIGRE 2025, Kopaonik
CIGRE 2025, Kopaonik



Elfack, Goteborg
Elfack, Göteborg



CG KO CIGRE, Bečići
CG KO CIGRE, Bečići



OIE Srbija 2025, Fruška Gora
RES Srbija 2025, Fruška Gora



Samit energetike Trebinje
Trebinje Energy Summit

Ulažemo u znanje

OD STIPENDISTA DO KOLEGA

Investing in knowledge

FROM STUDENTS TO COLLEAGUES

„Znanje raste dijeljenjem, a ne čuvanjem”, glasi čuvana mudra misao. *Ova velika istina nas inspiriše da, u okviru našeg društveno odgovornog rada, posebnu energiju usmjeravamo u mlade naraštaje, snažno uvjereni da će se podrška koju im pružamo višestruko vratiti našem društvu.*

AN OLD AND WELL KNOWN SAYING GOES: “KNOWLEDGE FLOURISHES ONLY WHEN IT IS GIVEN, NEVER WHEN IT IS HELD BACK.” *This enduring truth inspires us to direct our strongest efforts toward younger generations through our socially responsible work, guided by the conviction that the support we offer them will return to our society many times over.*

SR Brojnim društveno odgovornim misijama, po kojima smo prepoznatljivi, obuhvaćene su sve generacije, ali nam posebnu draž predstavlja kada objeručke podržavamo učenike i studente na sigurnom putu do njihovog stručnog usavršavanja.

STIPENDIJE I PODRŠKA

Elnos Grupa je tako ove godine dobila četvrtu generaciju stipendista, s tim što je riječ o našem programu koji uključuje i praktično iskustvo i mentorstvo u energetske sektoru. Naši inženjeri, naime, pomažu studentima, a ispostaviće se, i budućim kolegama, u istraživanjima važnim za realizaciju njihovih diplomskih radova. Kruna tog našeg zalaganja je već tu: 11 bivših Elnosovih stipendista danas su naše kolege, zaposlene širom Evrope.

„Naša kompanija je ove godine dodijelila stipendije za odabrane studente četvrtih godina osnovnih studija elektrotehničkih fakulteta u BiH. Osim novčane podrške, program stipendiranja Elnos Grupe uključuje i posebno kreiran program mentorstva. Po završetku diplomskog rada studentima se otvara mogućnost obavljanja pripravničkog staža u Elnos Grupi“, rekla je Jelena Đorđić, HR menadžer Elnos Grupe.

PRAKSE ZA SREDNJOŠKOLCE

Uz studente, radujemo se što svijet elektroenergetike približavamo i srednjoškolicima, kojima pružamo priliku za kvalitetan praktičan rad. Tokom proteklih 14 godina, ugostili smo više od 300 talentovanih mladih ljudi u našem godišnjem programu stručne prakse.

Ovi mladi umovi imali su priliku da uče, napreduju i primijene svoje vještine u stvarnom radnom okruženju – stižući iskustva koja se ne mogu naučiti samo u učionici. Njihova radoznalost, pretočena u brojna inspirativna i kreativna pitanja koja su nam postavili, samo je jedan od dokaza da je riječ o uspješnoj misiji.

„Prakse u našoj elektromontažnoj radionici u Banjaluci i ove godine izazvale su veliko interesovanje učenika Elektrotehničke i Politehničke škole. Danas oko 15 odsto nekadašnjih praktikanata radi ili je radilo u Elnosu, što, priznaćete, nije mala stvar. Drago nam je što učenicima možemo omogućiti da teoriju povežu s praksom i primijene znanje u stvarnom okruženju. Posebno nas raduje što se svake godine među njima izdvoje talenti koji kasnije postaju dio našeg tima“, rekao je Darko Krecelj, rukovodilac Proizvodno-logističkog centra Elnosa BL.

MALA PRAKSA – VELIKO ISKUSTVO

Učenici Elektrotehničke škole „Nikola Tesla“ iz Banjaluke sredinom maja učestvovali su u sedmodnevnom programu praktične nastave u našoj kompaniji.

Srednjoškolci su imali priliku da se upoznaju sa svakodnevnim izazovima, odgovornostima i prilikama koje nosi rad u savremenoj elektroenergetici.

Tokom terenske nastave, posjetili su trafostanicu Banjaluka 9 i solarnu elektranu Mrčevci, te se na licu mjesta upoznali sa time kako izgleda radni dan inženjera i terenskih radnika.

Susreti poput ovih imaju posebnu vrijednost – i za učesnike i za nas. Oni mladima omogućavaju da povežu znanje stečeno u školskim klupama sa stvarnim radnim okruženjem, dok nama pružaju priliku da prepoznamo i podržimo buduće kolege, one koji će sutra poželjeti da budu dio naših timova.

EN Through our socially responsible work, which we have become known for, we support every generation. Yet there is a particular satisfaction



Na terenu SE Mrčevci At the site of SPP Mrčevci



Obilazak trafostanice Banjaluka 9 Visiting substation Banjaluka 9



Posjeta kompaniji u Banjaluci Company visit in Banjaluka



Naša četvrta generacija stipendista Fourth generation of scholarship recipients

in standing behind pupils and students wholeheartedly as they move with confidence toward their professional growth.

SCHOLARSHIPS AND SUPPORT

This year, Elnos Group welcomed its fourth generation of scholarship students, part of a program designed to unite practical experience with mentorship in the power sector. Our engineers guide students through research essential to their final theses, and in many cases those students later return to us as colleagues. The results of this commitment are already clear: 11 former Elnos scholarship recipients are now employed by the company, working on sites across Europe.

“This year, our company awarded scholarships to several fourth year undergraduate students of electrical engineering faculties in Bosnia and Herzegovina. In addition to financial support, the Elnos Group program offers a tailored mentorship track. Once their thesis work is complete, students also gain the opportunity to begin their internship within Elnos Group,” said Jelena Đorđić, HR Manager at Elnos Group.

PRACTICAL TRAINING FOR HIGH SCHOOL STUDENTS

Alongside university students, we take equal pride in bringing the world of electrical power engineering closer to high school pupils, offering them a place to gain meaningful practical experience. Over the past 14 years, more than 300 talented young people have taken part in our annual practical training program.

These young minds learned, progressed, and applied their skills in real working environments, gaining experience no classroom can fully provide. Their curiosity, expressed through thoughtful and creative questions, remains one of the clearest signs that this mission succeeds year after year.

“Trainings in our electrical assembly workshop in Banjaluka again drew great interest from students of the High School of Electrical Engineering and Polytechnic High School. Today, about 15 percent of former participants work or have worked at Elnos, which is no small achievement. We are glad to offer pupils the chance to connect theory with practice and apply their knowledge in a real working environment. We

are most proud of the fact that every year, a few of those who stand out as talents later join our team,” said Darko Krecelj, Manager of the Production Logistics Center at Elnos BL.

SHORT TRAINING – LASTING EXPERIENCE

Students of the “Nikola Tesla” High School of Electrical Engineering in Banjaluka spent seven days in May taking part in a practical training program within our company.

They learned about the challenges, responsibilities, and opportunities that define work in modern power engineering. As part of their on-site training, students visited substation Banjaluka 9 and solar power plant Mrčevci, where they saw firsthand how engineers and site teams move through a working day.

Encounters like these hold particular value, both for students and for us. They help young people connect classroom learning with the reality of professional work, giving us in the process a chance to recognize and support future colleagues, those who may one day choose to join our teams.

U hodu, zajedno!

ON THE MOVE, TOGETHER!

**DIJELILI SMO POKRET, IGRO I NOVE
PRIČE S PUTOVANJA** i tako stvorili uspomene
koje nas iznova povezuju.

**WE SHARED MOVEMENT, PLAY,
AND NEW STORIES FROM OUR JOURNEYS,**
creating memories that continue to bring us together.



Timbiding Elnos Tradea Elnos Trade team building



Timbiding Elnosa BL na Uni Elnos BL team building on the Una River



Ljubljanski maraton 2025 Ljubljana Marathon 2025



Adrenatinska rekreacija Elnos Nordica Adrenaline seekers at Elnos Nordic



Zaslužene medalje, sjajna energija Well-earned medals, great energy



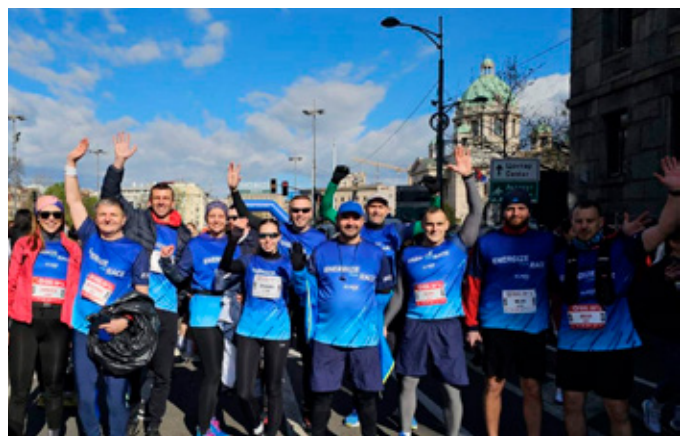
Timbuilding Elnos Srbije Elnos Serbia team building



Osmi mart u Italiji March 8 in Italy



Timbuilding Elnosa Crna Gora na Tari Elnos Montenegro team building on the Tara River



Beogradski maraton 2025 Belgrade Marathon 2025

Više od 8.000 sati edukacija!

MORE THAN 8,000 HOURS OF TRAINING!

ZNANJE VRIJEDI TEK KADA SE DIJELI. *U okruženju u kojem je učenje prilika, a ne obaveza, ideje slobodno putuju, iskustva se nadograđuju, a rezultati to jasno potvrđuju. Takav pristup u 2025. godini donio je više od 8.000 impresivnih sati edukacija posvećenih razvoju kompetencija i profesionalnom rastu zaposlenih.*

KNOWLEDGE SHOWS ITS TRUE VALUE WHEN IT IS SHARED.

In a workplace where learning is seen as an opportunity rather than an obligation, ideas move freely, experience is built on, and the results speak for themselves. In 2025, that approach led to more than 8,000 training hours devoted to building competencies and supporting employees' professional growth.

SR Tokom ove godine fokus je bio na razvoju zaposlenih kroz tehničke i soft skills obuke. Realizovane su edukacije za rukovodioce i zaposlene, uključujući obuke: upravljanje projektima, vještina i tehnike rukovođenja, poslovne komunikacije i mnoge druge.

Većina obuka imala je i onlajn praćenje zbog uključivanja kolega sa različitih lokacija, pa je učešće omogućeno i zaposlenima koji su radili van zemlje, uključujući Island.

Poseban akcenat stavljen je na oblasti digitalizacije i novih tehnologija. Tokom godine realizovane su obuke iz oblasti vještačke inteligencije – prvo za rukovodioce, a zatim i za druge kategorije zaposlenih.

Pored eksternih, održane su i interne obuke: ITS sektor realizovao je obuku iz MS Projecta, dok je obuku o upravljanju rizicima organizovao QMS sektor.

Obuke su održane u različitim formatima, a najzastupljenije su bile tehničke, zatim soft skills/menadžerske i liderske vještine, digitalna transformacija/AI i moderni alati, redovne obuke te bezbjednost i zaštita na radu.

„Naši zaposleni mogu predložiti obuke, a kvaliteta realizacije pratimo i kroz godišnju anketu zadovoljstva. Vjerujemo da su naši ljudi naša najveća vrijednost i da njihov razvoj predstavlja temelj napretka kompanije. Zato savremenim procjenama kompetencija prepoznajemo njihove potencijale i razvojne potrebe, stvarajući okruženje u kojem se talenti razvijaju, a uspjeh jasno prepoznaje“, pojašnjava Jelena Đorđić, HR menadžer Elnos Grupe.

EN This year, the focus stayed on development through technical and soft skills training. Programs were delivered for managers and employees, including training in project management, leadership skills and techniques, business communication, and many others.

Most trainings also offered online attendance to include colleagues from different locations, with participation available to employees working abroad as well, including in Iceland.

A special emphasis was placed on digitalization and emerging technologies. Training in arti-

ficial intelligence was also delivered during the year – first for managers, then for other groups of employees.

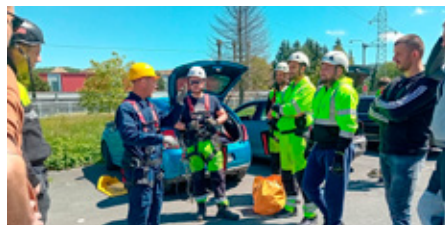
Internal trainings were provided simultaneously with the external ones: ITS sector ran training in MS Project, while the QMS sector organized training in risk management.

The courses were delivered in a range of formats, with technical skills leading the way, followed by soft skills and managerial and leadership capabilities, digital transformation and artificial intelligence, modern tools, mandatory recurring training, and occupational health and safety.

“Our employees are encouraged to propose training, and the quality of delivery is also monitored through an annual satisfaction survey. We believe our people are our greatest value, and their development is the foundation of the company's progress. That is why we use modern competency assessments to identify their potential and development needs, creating an environment where talent grows and success gets recognized,” explains Jelena Đorđić, HR Manager at Elnos Group.



Dobra edukacija je pola posla
Good training is half the work



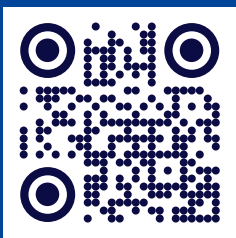
Sigurnost i zaštita na radu
Occupational health and safety



Tehničke i soft skills
Technical and soft skills



400 kV dalekovod Holstebro – njemačka granica, Danska
400 kV transmission line Holstebro – German border, Denmark



SKENIRAJ ME!
SCAN ME!



Budite dio dinamičnog svijeta elektroenergetike uz naš novi veb sajt – jedinstveno mjesto inspiracije i novih informacija!

Be a part of the dynamic world of electrical power engineering with our new website – a unique place of inspiration and fresh information!

elnosgroup.com

